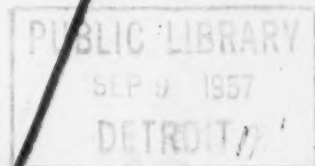


SEPTEMBER 1957

September 1957

Metal Products Manufacturing



including *finish* _____

SERVING THE

Appliance AND

FABRICATED METAL PRODUCTS INDUSTRY

FROM RAW METAL TO FINISHED PRODUCT

WHAT YOU NEED...WHEN YOU NEED IT

FOR *Colorful* PORCELAIN ENAMEL



Colors

Color Oxides
Smelter Color Compounds
Screening Colors
Graining Colors
High Temperature Enamels

Supplies

Screening Oils
Lining Blocks—Porcelain, High Density,
and Silex
Porcelain and High Density Alumina Balls
French Flint Pebbles
Rounded Flint Grinding Cubes
Ball Mills—Laboratory and Production
Porcelain Jar Mills—Laboratory and
Production
Paste Grinding Mills
Spray Equipment
Silk Screening Cloth
Stainless Steel Wire Cloth

Chemicals

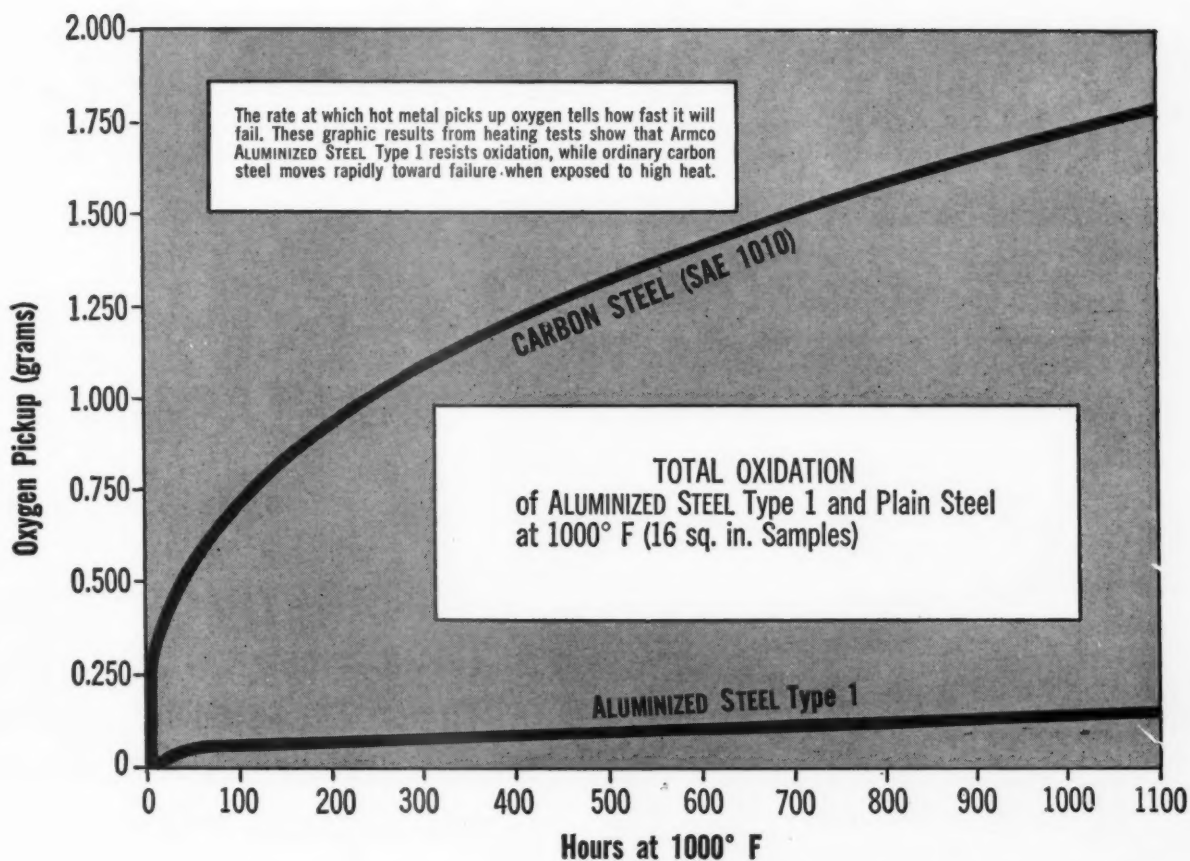
Aluminum Hydrate	Lithium Compounds
Aluminum Oxide	Magnesium Oxide
Antimony Oxide	Magnesium Carbonate
Antimony, Black Needle	Manganese Dioxide
Barium Carbonate	Molybdenum Compounds
Bentonite	Nickel Oxide, Grey
Cadmium Carbonate	Nickel Oxide, Black
Cadmium Sulphide	Nickel Sulphate
Chromium Oxide	Opax
Cobalt Carbonate	Potassium Carbonate
Cobalt Compounds	Potassium Nitrate
Cobalt Nickel Compounds	Potassium Silico Fluoride
Cobalt Oxide	Sodium Antimonate
Cobalt Sulphate	Sodium Fluoride
Copper Carbonate	Sodium Nitrate
Copper Oxide	Sodium Nitrite
Copper Sulphate	Sodium Silicate
Cryolite	Sodium Silico Fluoride
Epsom Salts	Tin Oxide
Fluorspar	Titanium Dioxide
Gum Arabic	Urea Crystals
Gum Tragacanth	Zinc Oxide
Iron Oxide	Zirconium Silicate
Litharge	Zirconium Oxide

C-21



CERAMIC COLOR & CHEMICAL MFG. CO.

New Brighton, Pa.



Test Shows How Well Armco ALUMINIZED STEEL Resists Heat

Armco ALUMINIZED STEEL® Type 1 (steel hot-dip coated with aluminum) stands up to heat because it withstands destructive scaling. This test shows how well.

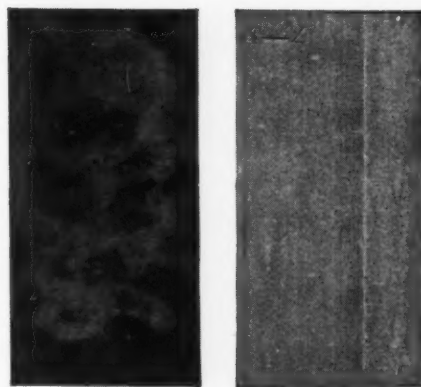
Above 900 F, an iron-aluminum alloy forms on the surface of Armco ALUMINIZED STEEL Type 1. It becomes a tightly-adherent refractory material that protects the base metal. Ordinary carbon steel lacks this protection. The powdery and flaky oxides which form on the surface of carbon steel fall away, exposing it to further attack.

Economical Double Protection

Armco ALUMINIZED STEEL Type 1 not only resists heat, it fights corrosion at the same time. In fact, this special 2-in-1 metal beats back deadly combinations of heat and corrosion better than any metal in its price class.

If parts of your products are exposed to a combination of heat and corrosion, it may pay you to get all the facts about Armco ALUMINIZED STEEL Type 1. It could be a low-cost solution for your problems.

Complete information on this special coated steel is readily available. Just call your nearby Armco Sales Office or write us at the address below.



After 1100 hours at 1000 F. Right—Armco ALUMINIZED STEEL Type 1; Left—SAE 1010 Steel.

ARMCO STEEL CORPORATION

1537 CURTIS STREET, MIDDLETOWN, OHIO

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • THE ARMCO INTERNATIONAL CORPORATION



PERMA-GRIP Handles

are available to you in . . .

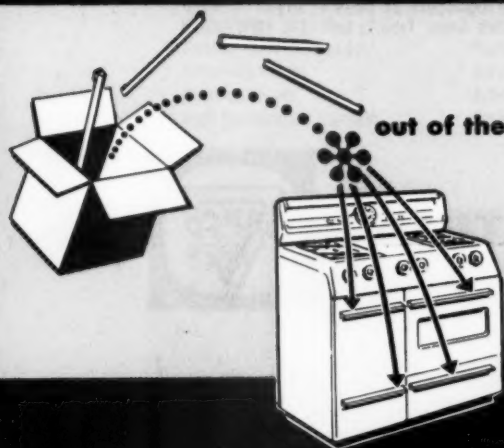
7 STANDARD MODELS

IN THE MILLS LINE YOU HAVE A SELECTION OF DISTINCTIVE DESIGNS AVAILABLE IMMEDIATELY AT STANDARD PRODUCTION PRICES . . .

PERMA-GRIP handles are produced by Mills Products, Incorporated, manufacturer of the now universally accepted PERMA-VIEW oven door window.

You can now purchase your appliance handles built to Mills' quality standards. Seven standard models are offered and four standard patterns are available on any model handle. All handles have plastic spacers which serve as a thermo-break. If you wish, consult with our engineering department regarding special custom requirements.

We have the skilled personnel, the specialized equipment, and we use the right materials to assure a reliable source for quality PERMA-GRIP handles. Let our specialized production lines serve as a part of your sub-assembly facilities. Phone or write us for complete details on PERMA-GRIP handles.



out of the carton—onto your range!

THE WINDOW YOU CAN SEE THROUGH ALWAYS

MILLS PRODUCTS INCORPORATED

1015 WEST MAPLE ROAD

WALLED LAKE, MICHIGAN



September • 1957

VOL. 14 • NO. 9

MPM

(including finish)

MONTHLY TRADE PUBLICATION

Established January 1944

Published by

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METAL PRODUCTS MANUFACTURING

FROM RAW METAL TO FINISHED PRODUCT

A trade publication devoted to the interests of the metal products manufacturing industry with special editorial attention to home appliances. The editorial scope covers design, engineering, market and statistical information and technical and practical information on plant facilities and all phases of manufacturing "from raw metal to finished product." Free controlled circulation to top management, purchasing, engineering and key plant management and supervision in metal product manufacturing plants. To others, subscription price is \$8.00 per year, domestic. To all other countries \$10.00 per year (U.S. funds). Single copies, \$1.00.

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INDUSTRY PERSONALS

G. R. Masquelier was recently named manager of product planning for the Westinghouse electric range department. Simultaneously, *Charles R. Evans* was named to succeed Masquelier as manager of sales training in the company's laundry equipment department. The two appointments were announced by J. J. Anderson, manager of the Westinghouse major appliance division.

Masquelier will have direct responsibility for initiating and coordinating advanced product development and new product planning through the design, engineering, home economics, service, and sales departments.

Evans will prepare programs, demonstrations and materials to aid distributor and retail salesmen in selling Westinghouse Laundromats, dryers and combination Wash-N-Dry Laundromats.



MASQUELIER



EVANS

Appointment of *Frederick J. Reed*, professor of mechanical engineering at Duke University, and chairman of the Standards Committee of the American Society of Refrigerating Engineers, to the newly-created post of chief engineer of the Air Conditioning and Refrigeration Institute was announced recently by Geo. S. Jones, Jr., ARI managing director.

Appointment of *Howard G. Haas*, as vice president in charge of sales for the room air conditioner division of 'Mitchell Manufacturing Co., Chicago, was announced recently.



REED



HAAS

Promotion of *Howard C. Given* to senior vice president-manufacturing and five other key executives to vice president was announced recently by Waste King Corporation, Los Angeles.

Named to newly-created positions as vice presidents were *A. L. Haggard*, national sales manager; *Dr. Hans Jordan*, chief engineer; *Boyd T. Marshall*, manager of the Engineering and Development Division; *Fred B. Norberg*, controller; and *James E. Carr*, director of industrial relations.

Harold E. Gahnz has joined the Armstrong Furnace Company's Columbus, Ohio organization as a district manager. The report states that he will be on assignment from the factory as a 'Roving Ambassador'.

Appointment of *Tom Conway* as director of manufacturing services of Borg-Warner Corp. has been announced. Since 1954 he had been general works manager of the Lycoming Division of Avco Corp.



James F. Calvin, a veteran of nearly 30 years in the air conditioning and refrigeration fields, has been named district manager in the O. E. M. Division of Acme Industries, Inc., Jackson, Mich.

Alan Potter, a recent graduate in Ceramic Engineering of Alfred University, has been appointed the Porcelain Enamel Institute's Research Fellow at the National Bureau of Standards in Washington, D. C., according to John C. Oliver, managing director of the Institute.

Ben Schuler recently was named parts and service manager for the Maytag Southwestern company, distributor of Maytag products in Texas and eastern New Mexico.

Schuler joined The Maytag Company in March, 1954, as service supervisor in the appliance manufacturing firm's Kansas City branch, and later held the same position with the St. Louis, Mo. branch. Prior to his employment with Maytag, he was associated with Artophone Corp., Philco distributor, and

several commercial credit organizations in St. Louis.

A. J. Pfeiffer was recently named manager of the Westinghouse refrigerator-freezer engineering department. John J. Anderson, manager of the Westinghouse Electric Corporation's major appliance division, announced that Pfeiffer will succeed O. H. Yoxsimer, who recently was named works manager of the Westinghouse appliance plant at East Springfield, Mass. Pfeiffer joined Westinghouse a year ago after nearly 24 years with Crosley.

Don H. Carter has been named manager of Kelvinator's commercial division, according to a recent announcement by Homer L. Travis, vice-president in charge of sales for Kelvinator division. He will succeed H. C. "Pat" Patterson, who has announced his retirement.



PFEIFFER



CARTER

The appointment of *O. H. Yoxsimer* as manager of the Westinghouse East Springfield appliance plant, with responsibility for all aspects of the operation including engineering, production, and sales, was announced recently by John W. Craig, vice president of Westinghouse Electric Corp.

Richard H. Kelly has been promoted to the position of national field sales manager for Easy Laundry Appliances, Chicago. The appointment was announced by Parker H. Ericksen, vice president of The Murray Corporation of America and the Easy Laundry Appliances division.



YOXSIMER



KELLY

PAINT SPRAY GUNS
for better, uniform finishes

SPECIAL SPRAY GUNS
for heavy materials

AIR COMPRESSORS
light, medium and heavy duty
stationary and portable

MATERIAL HANDLING PUMPS
to pump from original drums

HOSE AND ACCESSORIES

SPRAY BOOTHS
dry and water wash types

EXHAUST FANS
18" to 42" diameters

OIL AND WATER EXTRACTORS
for cleaner, drier air

FLUID PRESSURE TANKS
from 2 to 60 gallons

AUTOMATIC EQUIPMENT
for faster production

AND MANY OTHERS
Over 1100 standard items
backed by nationwide
engineering, sales, parts
and repair services.

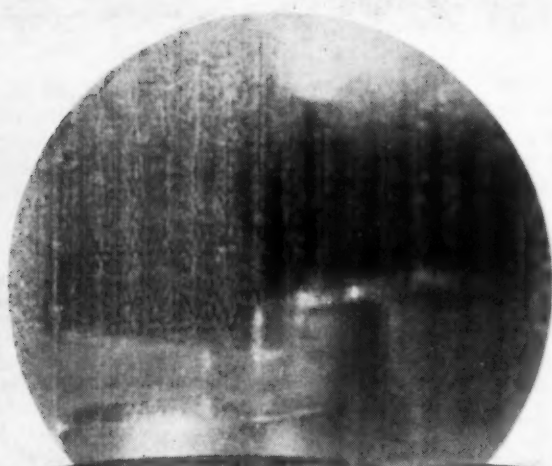
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Ask your Binks jobber for
Catalog 956 . . . or write
direct to the address
shown below.

Ask about our
spray painting school.
Open to all...no tuition
...covers all phases.

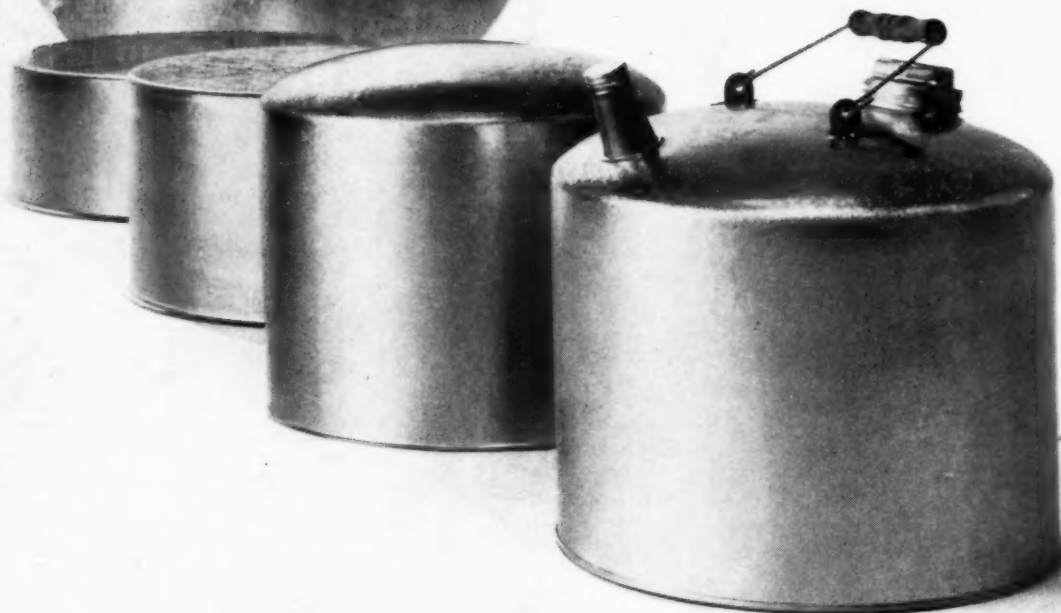
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EVERYTHING FOR
SPRAY PAINTING

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Manufacturing
Company**
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Chicago 12, Illinois

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*Eagle Manufacturing Company,
Wellsburg, West Virginia,
called on Weirkote's
deep-drawing capabilities
for its new, seamless
gasoline and oil cans*



WEIRKOTE[®] ZINC-COATED STEEL CAN BE SHAPED TO ANY PRODUCT SPECIFICATIONS!

Using Weirkote zinc-coated steel, the Eagle Manufacturing Company gives us a much needed improvement in gasoline and oil can construction. A container with a smooth, seamless-drawn, dome-shape shell.

Result? This smooth, dome-shape top leaves no place for grease, dirt and moisture to collect. And by eliminating top and side seams, chance of leakage is almost nil. (There's a double-seamed bottom, further insuring a leak-proof container!)

Eagle uses Weirkote for this tough drawing job for these specific reasons: Weirkote zinc-coated steel can be worked and shaped to the very limits

of the steel base itself. Its zinc-coated "skin" will not flake or peel under even the most severe fabricating stress. Thus, any chance of corrosion is eliminated.

Here's a material for your product that combines the corrosion resistance of zinc with the proven superior strength of steel. And Weirkote has the inherent flexibility to completely "obey" all your shaping stresses.

Weirkote will form to *your* requirements, too. Let us show you how it can do any job for you—*better!* Send today for free booklet on Weirkote. Write Weirton Steel Company, Dept. R-19, Weirton, West Virginia.



**WEIRTON STEEL
COMPANY**

WEIRTON, WEST VIRGINIA

a division of



THE MPM
spotlight



The Super-Crestline series room air conditioner, by Carrier, combines classic beauty with efficient performance, and is rated for full cooling capacity with less electrical current. The one horsepower model can be connected to a standard 115 volt line, and is the direct result of "constant balance" design.



**Immediate
availability
of material
for instance**

On hand always in our plant is an extensive inventory of a wide variety of materials*, available normally only on special order from mills.

No need for our customers to wait for such materials!

For your next hurry-up stampings . . . look for this plus beyond the price . . . immediate availability of material . . . and let us quote before you buy!

A brochure is yours for the asking!



**DETROIT STAMPING
COMPANY**

Established 1915

404 Midland Ave., Detroit 3, Mich.

"America's Leading Job Stamping
Manufacturer"

*Our stock of materials includes—close-tolerance spring steel, both tempered and annealed; copper and copper-base alloys, various analysis of carbon steels, and imported Swedish Flapper-Valve steel.

Look to Detroit!

and remember, STAMPING
is our middle name



information on Steamerette

Gentlemen: In the July, 1957 issue of your magazine, you have an article on "Simple Steam Cleaning Equipment Which Has Many Maintenance Uses." We are interested in obtaining more information on the subject device. Therefore, would you at your earliest convenience forward to us the name of the manufacturer whom we should contact for technical details. We shall thank you in advance for your cooperation in this matter.

Earl L. Read, Jr.
Industrial Heating Dept.
General Electric Co.
Shelbyville, Ind.

Ed. Note: For further details about the Steamerette, contact C. F. Devine, Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

for classroom study

Gentlemen: Please, may I have tear-sheets of the article, "Design Features of the Mrs. America Steam and Dry Iron", June 1957? If reprints are available in quantity, could I have 20?

I shall be teaching a class in laundering at Indiana University July 22-August 9. I would like to be able to give out reprints of this article to members of the class. The diagram on page 18 is excellent.

Thank you so much for anything you are able to send me concerning the Proctor iron.

Mrs. Maurine Miller Welch
Home Economics
Columbus 14, Ohio

Ed. Note: This article was not reprinted and, unfortunately, the supply of June issues is exhausted. Tear sheets were supplied for reproduction purposes.

Art Metal article interesting

Gentlemen: The writing titled "Art Metal's Automatic Aluminum Anodizing Setup" makes very good reading.

Is it possible for us to obtain about 50 copies of this two-page article?

S. L. Cahn
Technical Processes Div.
Colonial Alloys Co.
Philadelphia, Pa.

wants NST booklet

Gentlemen: We shall appreciate your immediately forwarding direct to Ataka & Co., Ltd., Bridgestone Bldg. 1, Kyobashi, 1-chome, Chou-ku, Tokyo, Japan, one volume of "Test Procedures" of the National Safe Transit Committee.

The package should be marked "Printed Matter, No Charge, SK/8712." Do not include anything in the package nor insure same.

Please let me have your invoice in

sexuplicate covering the cost of the publication and forwarding charges so that we may reimburse from this office.

Arthur Bandayan
Ataka New York, Inc.
Machinery Dept.
New York, N. Y.

gold plated buildings

Gentlemen: When we have made some outstanding architectural installations, we shall be very happy to send you pictures and descriptions. While in Burma, I saw a method of finishing buildings used, which I have not encountered in the United States, and that was with gold leaf. In Rangoon, there are at least three pagodas which are finished in that way; the Shwe Dagon, the Sule, and World Peace Pagoda, put up last year. The uppermost part of the first named is covered with thin gold sheets, each measuring about 6 inches square and .010 to .015 inches thick, beaten out by hand. It is pointed out that, as gold is immune to atmospheric corrosion, this form of covering is in the long run most economical. Perhaps you could prepare something for the Temple authorities pointing out that stainless porcelain on steel is equally good.

R. A. Simpson
A. Simpson & Son, Limited
Adelaide, South Australia

Ed. Note: Porcelain enamel on steel and porcelain enamel on aluminum are getting to be increasingly-important factors in commercial buildings in the States today. We'll be interested in hearing of your progress along these lines and, for that matter, we would be interested in getting information on any of your work or developments at any time.

long range viewpoint

Gentlemen: I've had the opportunity to look at the March 1957 issue of your magazine METAL PRODUCTS MANUFACTURING. Inasmuch as our work in the Product Planning Department is related to the long range activities of the Chrysler Division, it might be helpful to receive a copy of this particular magazine from time to time. Perhaps, you might be willing to send us an occasional copy on a gratis basis.

Charles L. Reno
Manager, Competitive Analysis
Product Planning
Chrysler Division
Chrysler Corporation
Detroit 31, Michigan

Flow coating metal furniture

There has been considerable reader interest in the article "Flow Coating Tubular Metal Furniture" by Fred D. Fisher of Configured Tube Products Company, which appeared in the July issue of MPM. Some of this interest centers on the plant layout. Readers desiring more information regarding the layout, or the major items of finishing equipment, should contact Burdett Manufacturing Company, 4920 South Monitor Avenue, Chicago 38, Illinois.



Chef-o-Matic

SURFACE ELEMENT TEMPERATURE CONTROL

IS BEST FOR YOU AND YOUR RANGE CUSTOMER

When selecting the automatic surface element control for your electric range, consider these significant features of the King-Seeley system:

- Temperature control range—100°F to 450°F
- Infinite number of precision settings within the temperature range, on a linear scale, in either knob rotation direction
- Quick response and recovery, dependable repeatability
- Anticipating feature of proportioning control limits over-shooting
- Accurate control in the Warm, Boil and Fry ranges
- All electric units with wire connections only—no tubes or other mechanisms to fuss with
- All units completely interchangeable
- Controls any wattage up to 3000 watts
- Expensive dual wattage elements not necessary

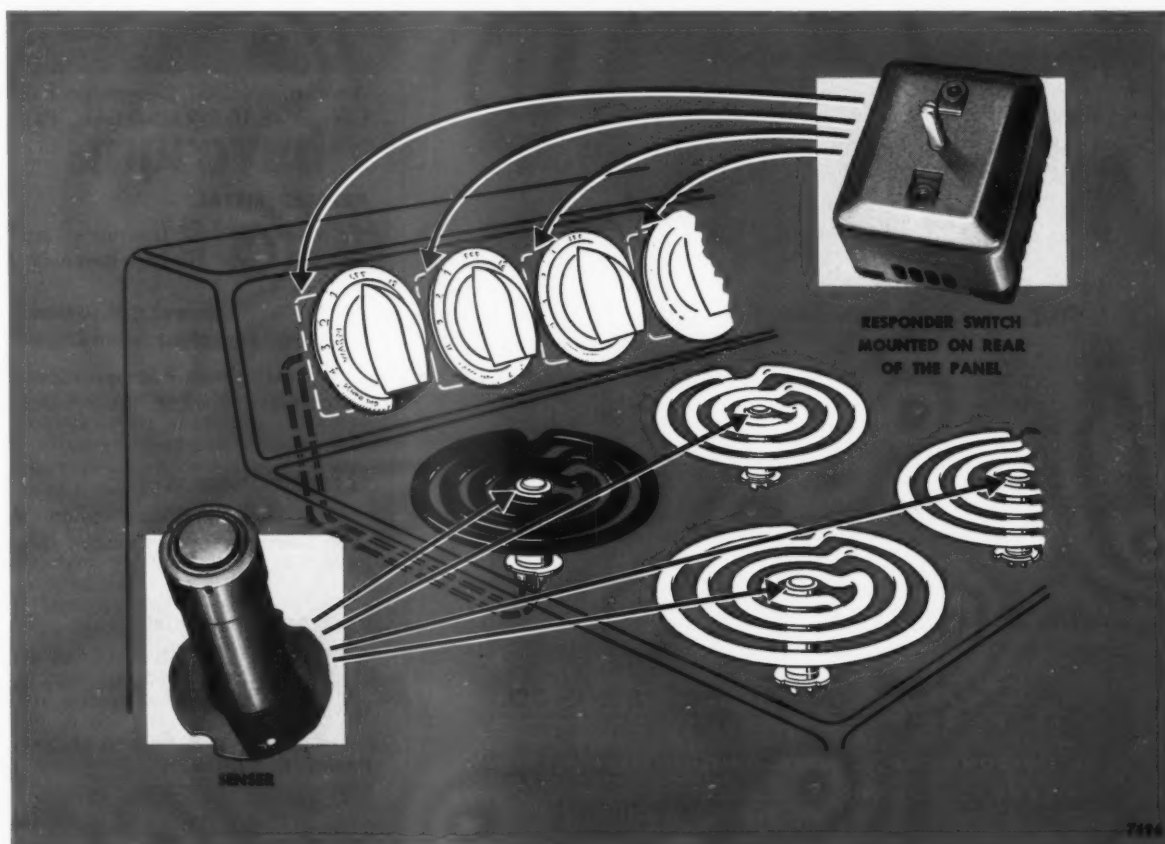
- User safety assured by low voltage system between sensor and responder switch
- Only one transformer for any number of surface units
- Automatically reduces wattage when cooking utensil is taken off surface element
- Rugged sensor—withstands up to 800°F
- Economical and easy to install

MAKE YOUR OWN COMPARISONS
OF PERFORMANCE, QUALITY AND
COSTS. WRITE FOR COMPLETE
SPECIFICATIONS.

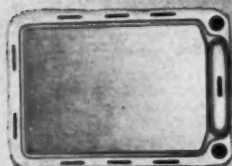


**KING-SEELEY
CORPORATION**

ANN ARBOR, MICHIGAN



ALUMINUM PERMANENT MOLD CASTINGS



ITEM No. 1



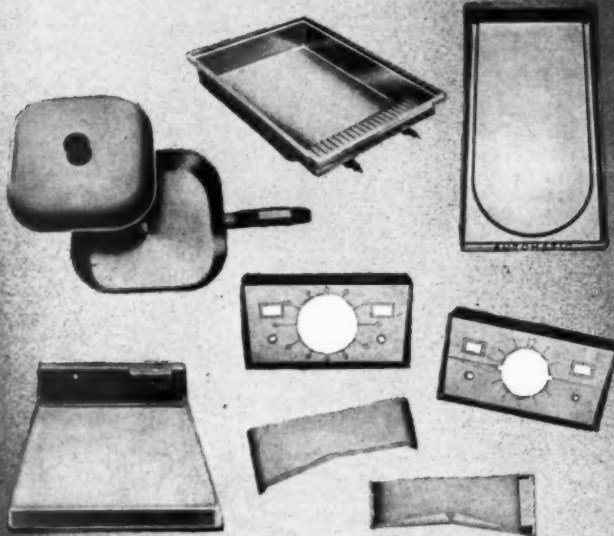
ITEM No. 2

STANDARD AND CUSTOM MADE

Items No. 1 and 2 are standard. Other Griddles for gas and electric ranges are custom made with our exclusive DURAGLAZE or SATIN finishes. They are most popular because they do not discolor easily and cleaning is quick and simple.

Many other styles not shown are available as standard items. Write for full particulars.

MAY WE QUOTE ON YOUR REQUIREMENTS.



Exalco

MANUFACTURING CO.

ALUMINUM IN PERMANENT MOLD

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CHICAGO OFFICE 4416 W. Fullerton • Chicago 39, Ill.
Everglade 4-7171

INDUSTRY MEETINGS

INSTRUMENT-AUTOMATION

Instrument Society of America's 12th Annual Instrument-Automation Conference and Exhibit, Cleveland Auditorium, Cleveland, Ohio. September 9-13.

MECHANICAL ENGINEERS

Fall Meeting of The American Society of Mechanical Engineers, Statler Hotel, Hartford, Conn., September 23-25.

SCREW MACHINE PRODUCTS

National Screw Machine Products Association's Annual Fall Meeting, Broadmoor Hotel, Colorado Springs, Colo., September 29-October 3.

PORCELAIN ENAMEL

Porcelain Enamel Institute's 26th Annual Meeting, Greenbrier Hotel, White Sulphur Springs, W. Va., October 3-5.

ELECTRICAL ENGINEERS

American Institute of Electrical Engineers Fall General Meeting, Chicago, October 7-11.

AUTOMATIC MERCHANDISING

National Automatic Merchandising Association's 1957 Convention Exhibit, Convention Hall, Philadelphia, Pa., October 13-16.

PRESSED METAL

Pressed Metal Institute's Annual Meeting, Castle Harbor, Bermuda, October 13-17.

FURNITURE DESIGN

National Furniture Design Show, The Merchandise Mart, Chicago, October 14-18.

SAFETY CONGRESS

45th Annual National Safety Congress and Exposition, Chicago, October 21-25.

PACKAGING FORUM

Nineteenth Annual Forum of Packaging Institute, Hotel Statler, New York City, October 28-30.

PAINT & VARNISH

Federation of Paint and Varnish Production Club's 35th Annual Meeting, Bellevue-Stratford Hotel, Philadelphia, Pa., October 30-November 2.



Improved electrocleaning of recesses and low current density areas

Controlling foam, lengthening solution life

Despite careful racking and well-planned production, deep recesses and places of normally low current density on intricately shaped parts are always trouble spots.

Diversey electrocleaners were specially fortified with exceptionally high wetting and emulsifying powers to do an effective job at those "problem places." This chemical cleaning supplements high current carrying capacities to give more efficient cleaning in a shorter time. Work emerges waterbreak-free and smut-free, ready for subsequent baths.

You can also depend on Diversey electrocleaner solutions for longer-lasting cleaning power. Greater contamination capacity enables you to use solutions long after ordinary solutions have to be dumped because of heavy soil accumulations.

Controlled foaming is an added safety feature of Diversey electrocleaning. The limited foam blanket serves as a safeguard against explosion dangers even in those occasional cases where current density is stepped up to speed production. When used according to recommendations, Diversey electrocleaners operate safely through a wide range of current densities . . . always exhibiting a high, stable conductivity.



**WRITE TODAY FOR
YOUR FREE COPY OF
THIS NEW BOOKLET**

*Metal Industries Div.
The Diversey Corp.
1820 Roscoe St.
Chicago 13, Ill.*

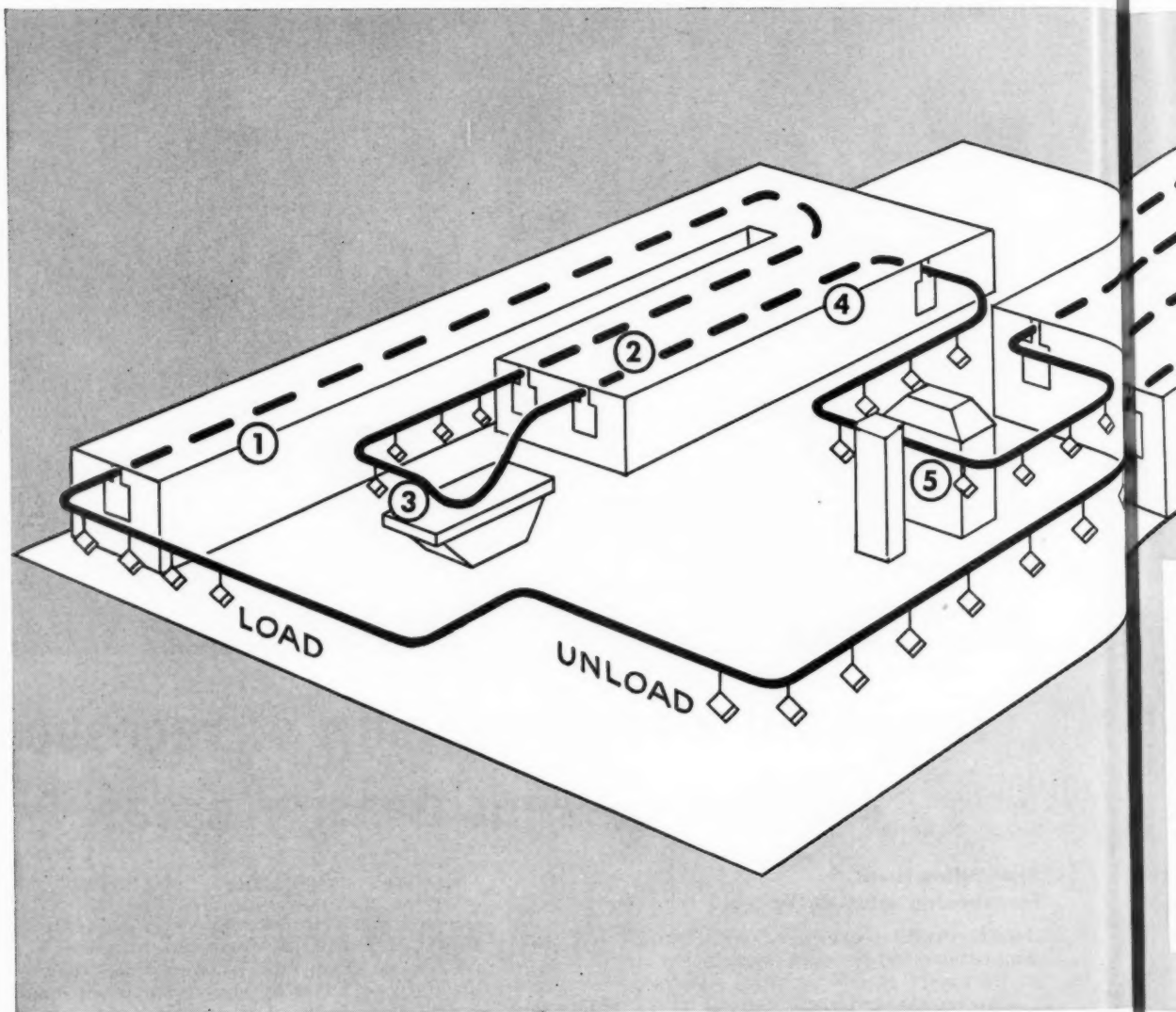
PLANTS IN CHICAGO, NEWARK AND SOUTH GATE, CALIFORNIA. WAREHOUSES IN PRINCIPAL CITIES.

DIVERSEY®

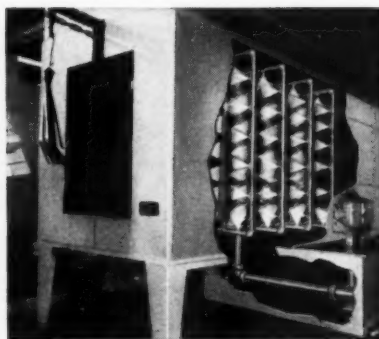
ELECTROCLEANING



DeVilbiss announces a **New** and ex



NEW! Industrial Ovens



NEW! Parts Washers



NEW! Multi-Stage Metal-Treating Units

Expanded line of finishing equipment

Now, through its new subsidiary—Newcomb-Detroit Company—DeVilbiss emerges as the only "one-source" company that designs, manufactures and installs complete painting systems for all major types of finishing operations.

WHATEVER you manufacture—giant aircraft or miniature lamp filaments—now you can get *all* your coating and finishing equipment from a single company . . . DeVilbiss!

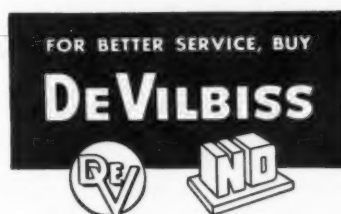
Supplementing its complete line of spray equipment, DeVilbiss now offers industrial ovens; flo-coaters and dip-coaters; automatic washers for parts cleaning, metal treating, and spray pickling; dust collectors for grinding, polishing, and metal-finishing operations; and complete systems, custom-designed or built-up from standardized components.

These facilities offer important advantages to you: one-source responsibility for product quality, performance, operational efficiency; matched equipment for fully integrated systems; and individual finishing units backed by diversified design and manufacturing experience.

Engineering, installation and service facilities are available from coast to coast. So when planning to build, expand or remodel your finishing system—or replace any component in your present operation—call in DeVilbiss.

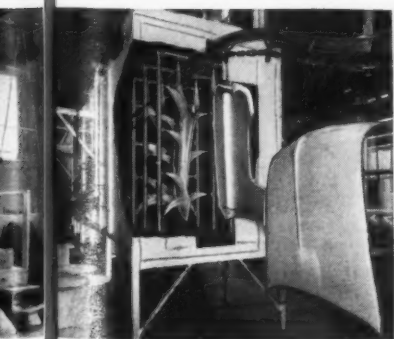
DeVilbiss' experience in the design, manufacture, and installation of systems like this, means you save in cost and operation; benefit in performance and product quality.

1. Phosphatizing Unit
2. Dry-off Oven
3. Dip Tank
4. Prime Coat Bake Oven
5. Automatic Spray Machine
6. Finish Coat Bake Oven

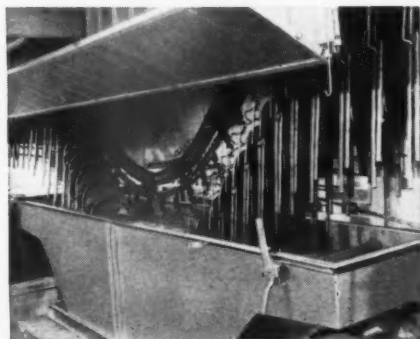


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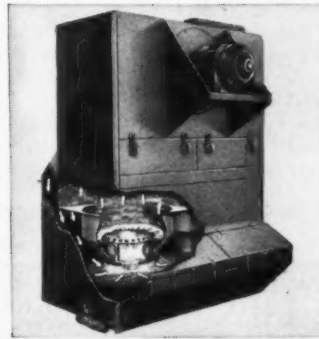
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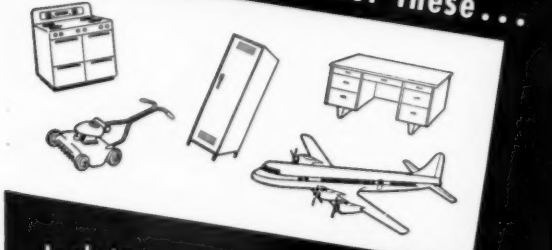


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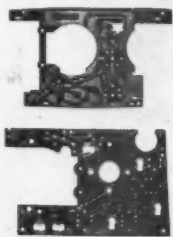
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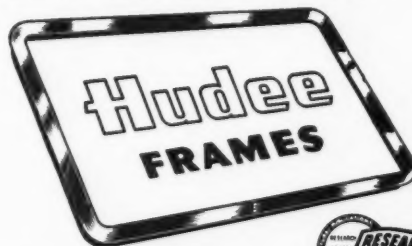
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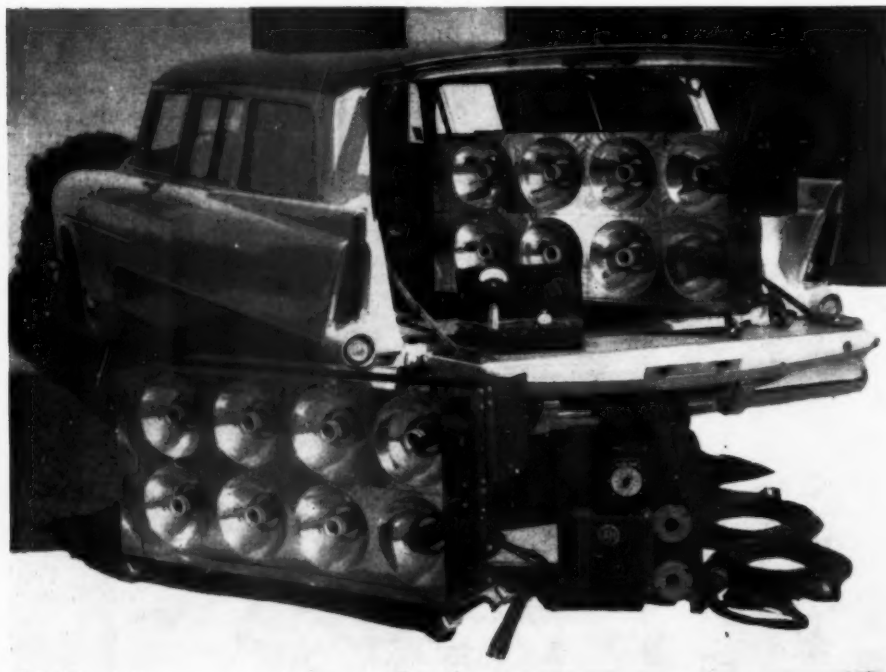
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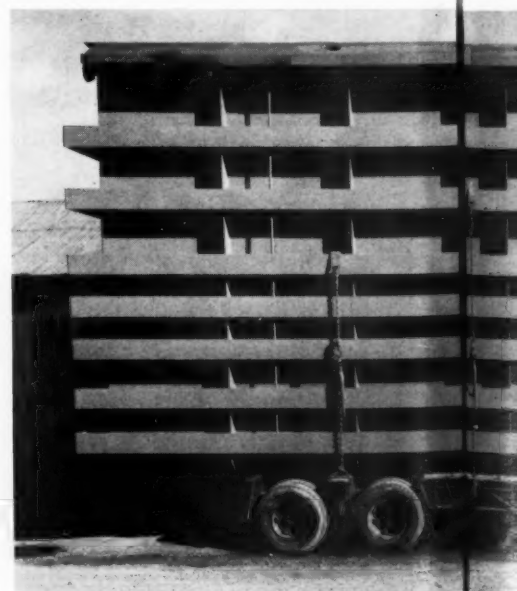


WESTINGHOUSE "YS" unit-type stationary air compressors move along the assembly line of the Le Roi division's new production facilities at Greenwich, Ohio. Finished portions of "G" compressors are stored in the background.

MPM foto-news about INDUSTRY SUPPLIERS



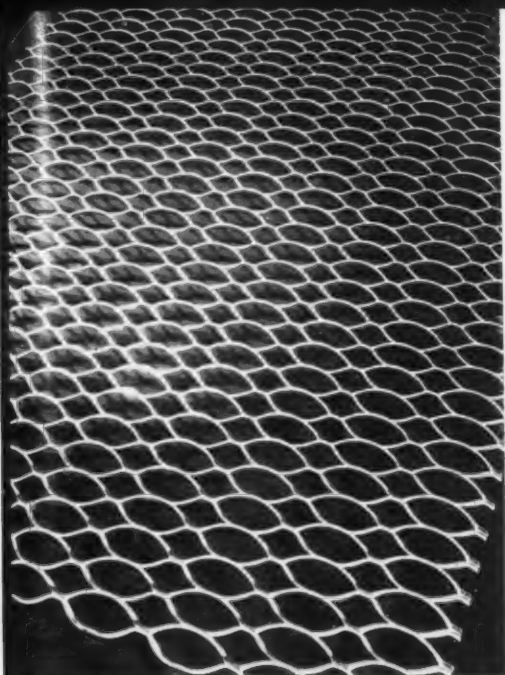
FIELD TESTING SERVICE, utilizing infra-red industrial ovens in the plant of any company which has a heating, baking, or dehydrating problem, has been announced by M. N. Kanouse, president of the Dry Clime Lamp Corp., Greensburg, Ind. All Dry Clime representatives are now equipped with complete infra-red field testing setups, making it possible for them to run complete tests in customers' plants.



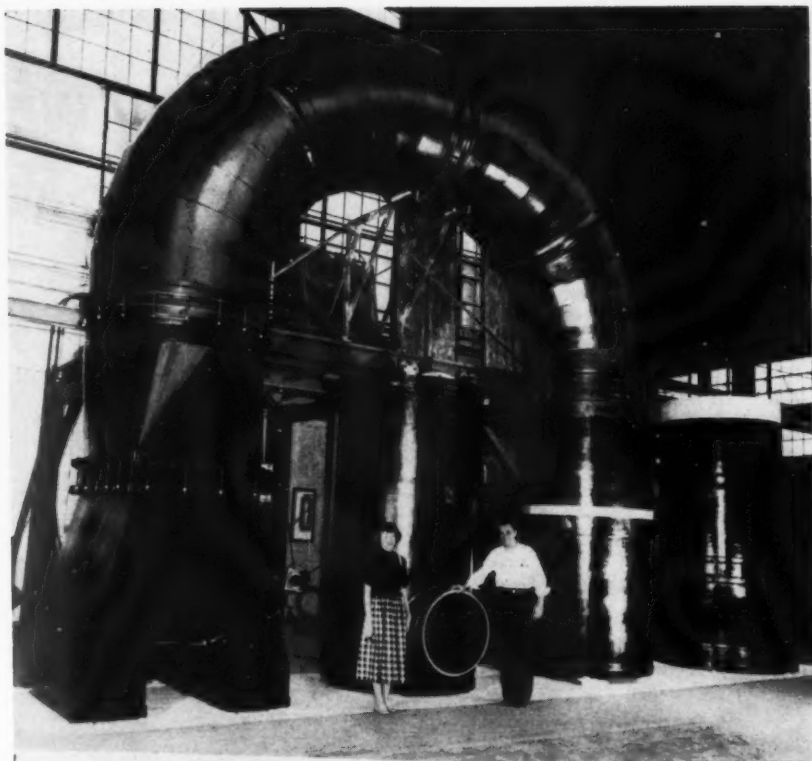
LARGEST PROCESSING TANK ever produced by the Metal Finishing division of Frederic B. Stevens, Inc. for the anodizing of aluminum recently was delivered to Reynolds Metals Co. The tank measured 26 ft over



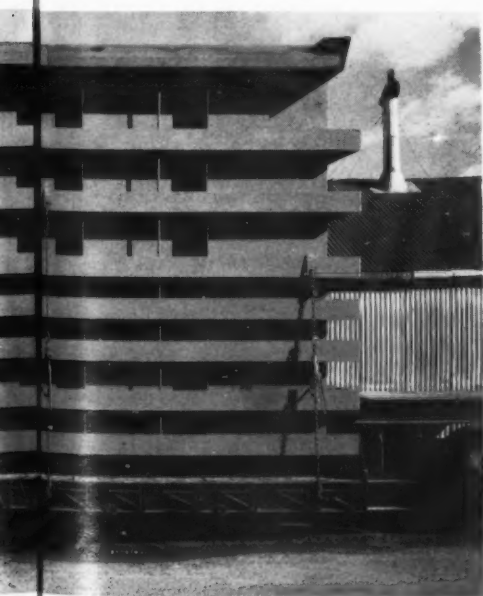
U. S. MARINE CORPS color guard raises the American and Netherlands flags over Ferro Corporation's Cleveland headquarters, in salute to overseas subsidiary for production record, as guests and company officials look on. Included in the group are Robert A. Weaver, chairman of the board, John B. Boeren, Honorary Netherlands Consul, and Rudi Bruin, representing Ferro (Holland).



RONDO PATTERN, one of four offered by United States Gypsum Co. The expanded metal patterns are available in carbon steel, aluminum, and, in some meshes, stainless steel. They are fabricated from sheets of solid metal which are slit and cold-drawn into continuous patterns. The strands and bonds rest at sharp angles to the original plane of the sheet, adding strength.



FUME DUCT SYSTEM, designed to handle wet sulphur dioxide and H_2SO_4 fumes resulting from metal finishing operations, is made entirely of plastic, and is said to be resistant to chemical corrosion. The duct, it is claimed, was installed at a cost below that of other corrosion resistant materials.



prong, 5 ft. wide, and 14 ft. deep, and required on oven heavy gauge steel reinforcing belts to insure rigidity when filled with solution. In Reynold, this tank has a solution capacity of 26 ft. over 13,500 gallons, or about 60 tons.



PRECISION-MADE OILER, designed like a fountain pen to deliver exact amounts of oil as small as a fraction of a drop. It operates in holes up to $\frac{7}{8}$ " in depth, and in other out-of-the-way places.

SERVICE LIFE of an automatic domestic water softener is said to have been lengthened through the use of epoxy resins to encapsulate a valve coil. The valve was designed by The Permutit Co. to make their water softening unit automatic.



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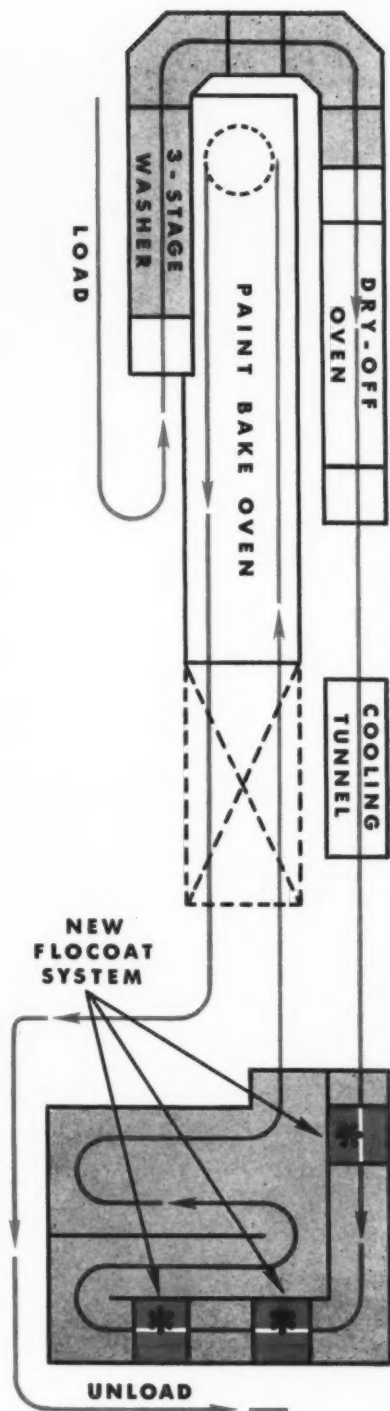
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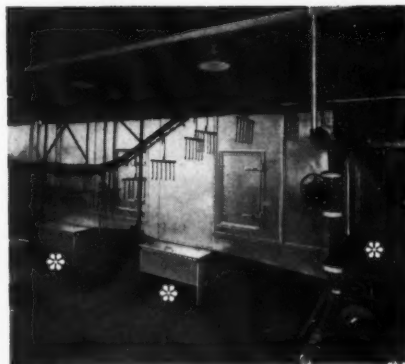
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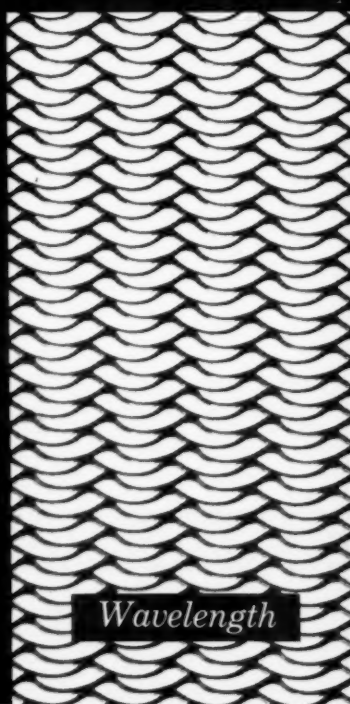


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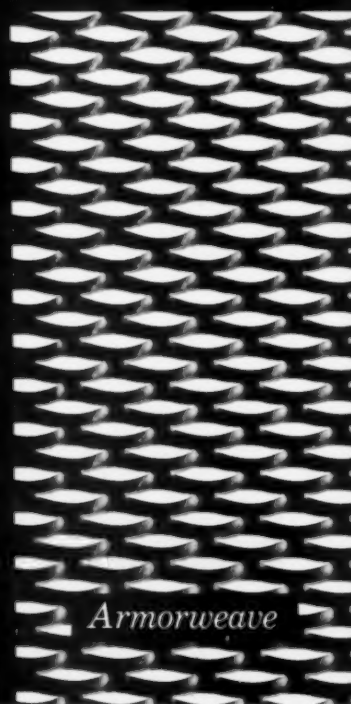
METAL



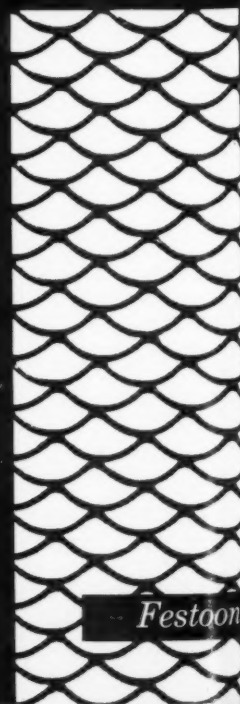
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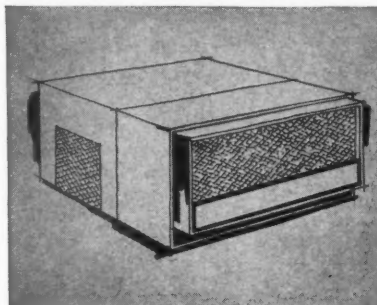


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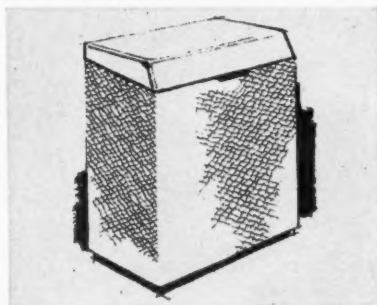
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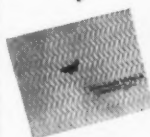
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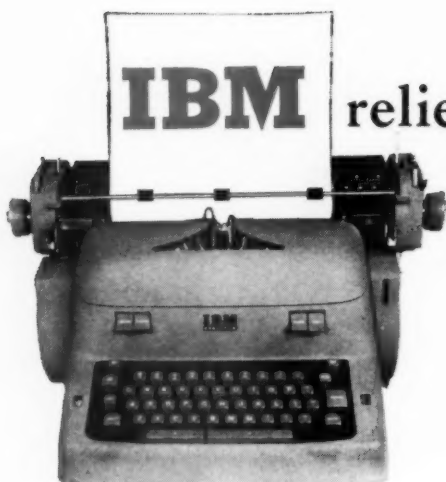
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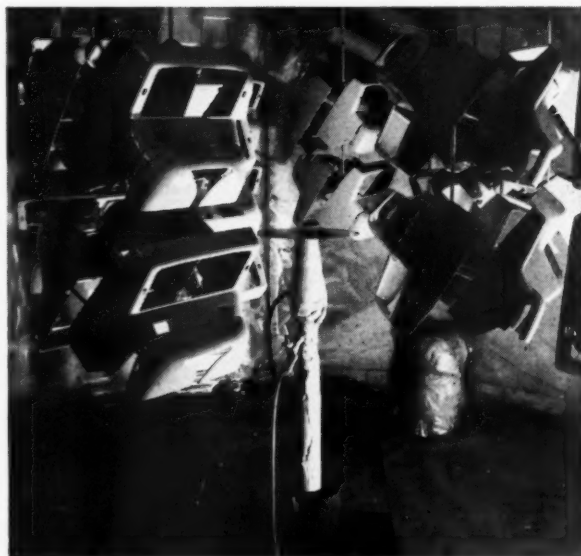
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A 4-ft. deep trench in floor, in conjunction with a 3-ft. dip in conveyor chain height directly over the pit, permits floor-level loading of all fixtures.

Plant modernization speeds lighting fixture finishing

by Gilbert C. Close • WESTERN EDITOR

THE two words "integrated" and "automated" very well describe the recently-renovated finishing department at Sunbeam Lighting Co., Los Angeles, Calif. Sunbeam is one of the nation's major manufacturers of architectural and industrial fluorescent lighting fixtures.

The department may be described as "integrated" simply because it blends so well with the overall production picture. By working 8½ hours a day (a bit longer if necessary, but always in a straight-through, uninterrupted workshift) all lighting fixtures produced by the shop in two complete workshifts can be finished. After finishing, the fixtures are delivered by the finishing department conveyor directly to specific bays in the final assembly department. Thus the finishing department, minus any lost motion or interrupted working time, smoothly and efficiently "bridges the gap" between shop production and final assembly. The only in-process work that accumulates normally occurs during the second shop workshift while the finishing department is shut down. As a rule, this accumulation is always cleaned up the following day.

Material handling in the department

is completely automatic from the time the fixtures are conveyORIZED until they are unloaded in the final assembly department. Cleaning, surface treating, drying, electrostatic painting, and final baking are completely automatic. The only manual effort required anywhere along the line is in the touch-up booth immediately following the electrostatic finishing unit. Here, two employees do the necessary touch-up work as the fixtures flow steadily through the booth.

The main components of the finishing line include a 50-ft. long, gas-fired cleaning and surface treating unit (phosphatizing unit); a 38-ft. gas-fired drying oven operated at 400 degrees F.; an electrostatic unit; a water-wash touch-up booth; and a final 40-ft. gas-fired baking oven operated at 300 degrees F., through which the fixtures make four looped passes before emerging ready for the assembly department.

Carefully engineered

conveyor equipment

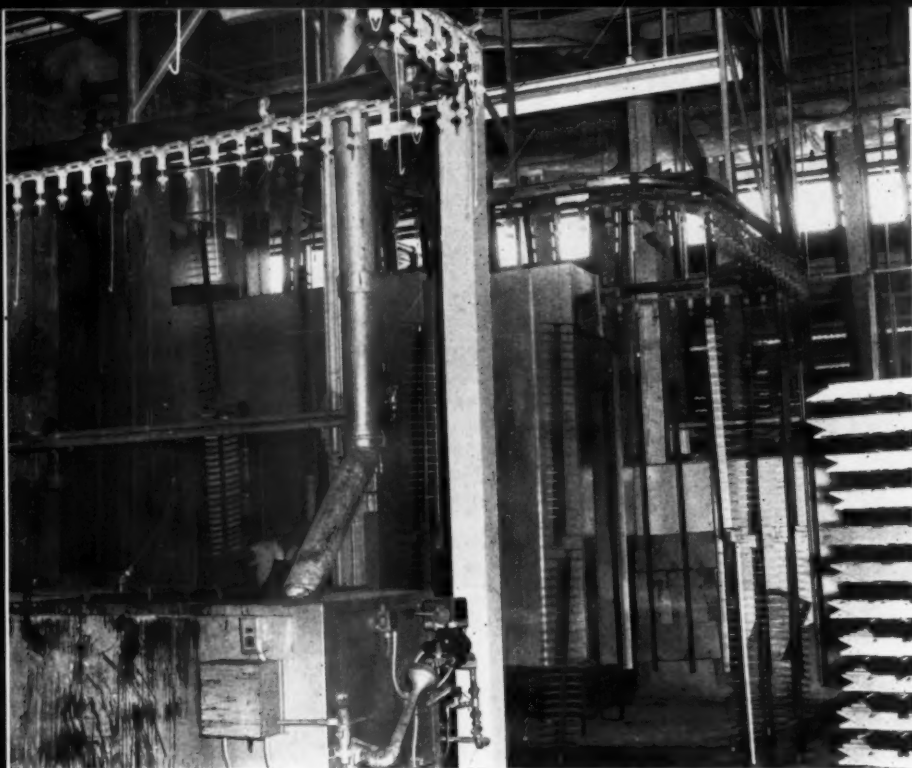
These components are linked together by an 810-ft. long overhead conveyor system equipped with roller-type hangers at 6-inch intervals. Conveyor speed is 6 ft. per minute, and approximately

2 hours and 15 minutes are required for one complete conveyor circuit. The 1620 conveyor hangers that pass a given point during this interval give no reliable indication of finishing line capacity. Some large parts may span seven hangers in hanging; other small parts may be hung several deep (linked together by hooks) on every hanger.

At the time of this writing, the new finishing department at Sunbeam Lighting has been in operation for more than 20 months. No shutdown caused by mechanical trouble has lasted more than an hour. This not only attests to the overall quality and efficiency of the conveyORIZED installation, but also to the many carefully engineered details which help keep it in consistent, uninterrupted operation. Many of these details will be interesting to others who contemplate finishing department renovations.

Hang sections vertically for painting

The first important detail along the line is the floor pit used to facilitate conveyor loading. Maximum vertical sweep of the electrostatic spray painting unit is 100 inches. This means that fixture components up to 8 feet long may be hung for painting. Shorter com-



Fixtures emerge from automatic cleaning and surface-treating chamber (left), make a horseshoe turn, then enter 38 ft. baking oven (right). Strip tank for removing paint from conveyor hooks is in foreground. Compact arrangement of all major finishing line components reduces space requirements.

ponents are hung linked together by simple hooks (two 4-ft. parts, four 2-ft. parts, etc.). While a single long part might be conveyORIZED from floor level (though it would be inconvenient), it would be impractical to conveyorize shorter parts linked together on conveyor hangers traveling more than 8 feet above floor level.

To solve the loading, a 4-ft. deep trench was sunk in the floor paralleling the overhead conveyor. Just above this trench, the conveyor chain dips downward for three feet, bringing the hangers to a convenient working height. It thus becomes a simple matter to lower one end of a fixture (or one end of several linked fixtures) into the pit while the other end is hooked to a conveyor hanger. Before the end of the trench is reached, the conveyor rises again to normal level. Thus the need for an elevated conveyor loading platform with its obvious disadvantages was eliminated.

A second line detail is important because of its contribution to consistent quality, and also because it could be cheaply and efficiently installed on any automatic cleaning and surface treating unit. This detail has to do with maintenance at all times of correct solution strength in the first, or cleaning and surface treating stage of the automatic cleaning and surface treating unit.

Normally, dilution in this first stage is caused by carryover and gradual deterioration of the chemicals. In most shops, periodic titrations are made, followed by additions to bring the solution up to normal strength. But it is quite obvious that for a period preceding the titration, the solution will be operating at sub-normal strength.

At Sunbeam, immediately after installation of the automatic cleaning and surface treating unit, a careful record was kept of the amount of additive required each time a titration was made. These records soon indicated an average amount of additive required after each titration. A container with an adjustable outlet petcock was then installed. Feed through the petcock can be varied from a slow drip to a steady stream. The outlet from the container is channeled into the solution chamber.

The average amount of additive formerly required after each titration is put in the container and the petcock is adjusted so that it will be added to the solution in the unit during the interval between titrations. After a few trial runs, this can be timed almost exactly. This method of solution replenishment is effective, as indicated by the very small deviations in solution strength indicated by subsequent titrations.

The first stage in the 50-ft. automatic cleaning and surface treating unit con-

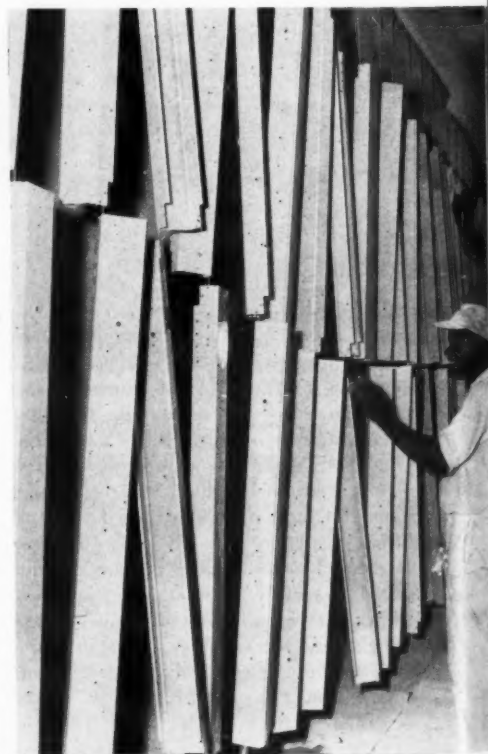
tains the cleaning and surface treating solution (phosphatizing solution) operated at 160 degrees F. The second stage is a hot water rinse, while the third stage is a hot water plus chromic acid rinse. Just beyond this unit, the conveyor makes a horseshoe bend and carries the fixtures back through the 38-ft. gas-fired drying oven. A second horseshoe bend carries the fixtures back across an aisle and into the electrostatic booth.

Coating thickness critical

Due to the various shapes and sizes of the lighting fixtures, and especially to the sharp bends and recesses caused by multiple formings, the coating thickness applied in the electrostatic paint booth is critical. Some parts will accept a much heavier coating than others without danger of runs or sags in the coating material. This means that the coating thickness must be varied for different types of work.

To facilitate making this change at exactly the right moment, and so that several fixtures at the beginning and end of each run won't be over- or under-

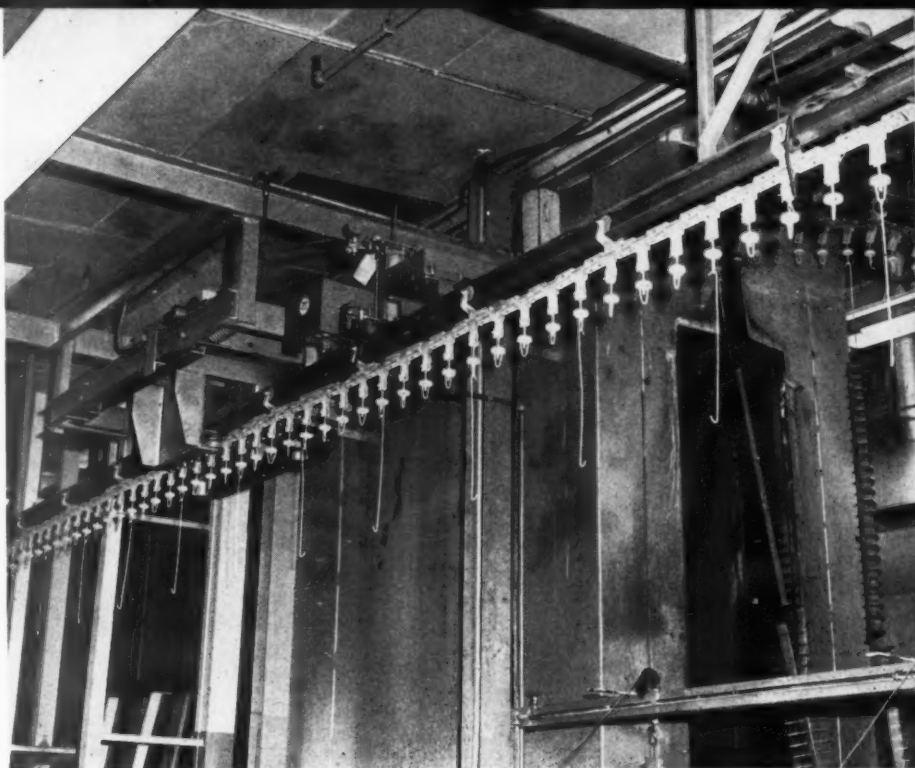
View from the electrostatic booth toward the touch-up booth. Here again compact arrangement is evident. Two employees in touch-up booth can handle all work flowing by at 6 ft. per minute.



coated, the control which governs the thickness of the electrostatically-applied coating is located directly in front of the electrostatic booth. Thus the operator can watch the fixtures approach the booth, see them enter it, and make the changeover at just the right time to avoid over- or under-coating. This may seem like a simple arrangement and it is, but it holds to a minimum the number of over-coated fixtures, or fixtures which require excessive touch-up after electrostatic spraying.

Fixtures leaving the electrostatic booth enter immediately into the water-wash touch-up booth. Despite the variety of fixtures and variety of shapes produced, two men in this touch-up booth can handle all the work as the fixtures flow through at the rate of 6 feet per minute. Beyond the touch-up booth, the conveyor moves through a wall orifice directly into the baking oven department. The conveyor makes four passes back and forth through the 40-ft. baking oven, accumulating a total of 20 minutes baking time in the hot (300 degree F.) baking zone. The fixtures

View in electrostatic paint booth taken from location of control used to adjust electrostatically-applied coating thickness. This direct view aids in adjusting the control at just the instant fixtures requiring a different coating thickness enter the booth.



Automatic lubricator for conveyor. Extension spray nozzles lubricate rollers on hangers that turn while fixtures are in electrostatic spray booth. Automatic timer shuts lubricator off after conveyor has made one complete revolution to prevent over-lubrication and fixture contamination.

leave the baking oven for normal air cooling, then proceed directly into the final assembly department. Here the conveyor parallels one end of the assembly department so that fixtures can be unloaded directly into pre-assigned bins, bays, or locations. The conveyor chain then takes a short-cut, ceiling-high route back to the conveyor loading station.

Automatic control of conveyor chain lubrication

Just before the conveyor chain reaches the loading station, it passes an automatic conveyor chain lubricator. This lubricator has two offset spray nozzles which lubricate the rollers on the conveyor hangers. These hangers turn while the parts are in the electrostatic paint booth. This conveyor chain lubricator is equipped with an automatic timer so that the conveyor chain is lubricated during one complete revolution, then the lubricator shuts off until additional lubrication is required. This prevents over-lubrication with consequent unnecessary contamination of solutions, and eliminates the danger of surplus oil running onto the parts.

A strip tank, for stripping the hooks used to hang the parts, is located convenient to the loading station. Double hooks (like two "J's" butted together) are used. The hook is used once, then

inverted for use again. After two trips around the conveyor, the hooks are bundled and stripped.

Paint for the electrostatic booth, and for the touch-up booth, is furnished by a pair of pump units in a nearby fireproof paint storage vault. Thinner is metered in from two underground storage tanks of 2,000- and 8,000-gallon capacity. A second 35-ft. long water-wash paint booth in a room adjacent to the conveyORIZED finishing department is used for painting special work and the few parts that are too large for handling on the continuous line. This special paint booth has its own adjacent baking oven.

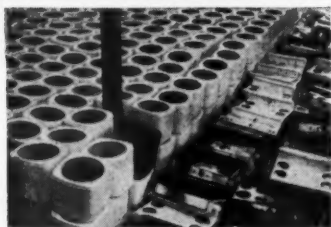
As might be surmised, finishing of fluorescent lighting fixtures is a critical operation. No blemishes of any type are allowed to pass inspection. Sunbeam Lighting Co. officials are adamant on this point. The fixtures are line-inspected both after leaving the surface treating unit, and again after painting. Inspection continues while the parts are being assembled into finished fixtures.

Despite the supercritical inspection, rejections run less than 1/2 of 1 per cent. And most of these are due to some sort of mechanical injury. This speaks for the ability of a modern finishing department to consistently produce high quality finishing work.



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Tests for evaluating resistance to steam condensate attack

by *J. A. Schieffele* • GENERAL ELECTRIC COMPANY

IN THE last few years, with the introduction to the major appliance field of the combination washer-dryer, there has arisen a new problem of steam condensate corrosion of Porcelain Enamel. At present, the problem has not received much publicity; not because the problem is not serious, but because of the limited number of companies which have encountered it. As production of this unit increases, as it no doubt will, it is conceivable that the washer-dryer units will replace the automatic washer just as the latter replaced the wringer washer. When it does, the problem of steam condensate corrosion will be more frequently encountered. It behooves us to have a finish which will satisfy the needs of whatever design the engineers present. This can only be accomplished by having a test procedure which will simulate steam condensate corrosion. By using the data obtained from such a test, a specification can be written, and a finish developed to meet the need. With this in mind, a survey was made to determine what test procedures were being used. This infor-

mation should give a better conception of the problem, and the methods being used to evaluate enamels to meet the need.

In the general procedure used in preparing the test specimens, it was found that they all followed the same technique with only slight variation.

Samples are prepared with the enamel system to be tested; one coat, overspray or two coat and fired at optimum or desired temperature and time. The panels are scrubbed with a cleanser such as "Tide", rinsed in distilled water, dried at 110°C. or better, and placed in a desiccator to cool if the panels are to

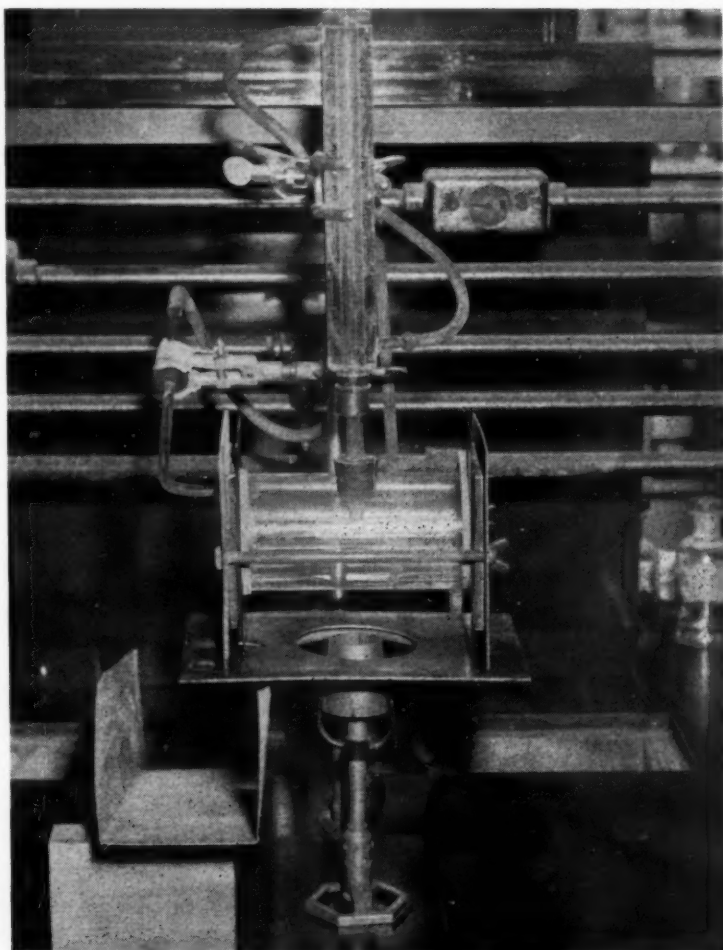


Fig. 2 — Apparatus for measuring steam condensate corrosion on porcelain enamels.

Fig. 1 — Typical steam condensate corrosion attack on porcelain enamel.



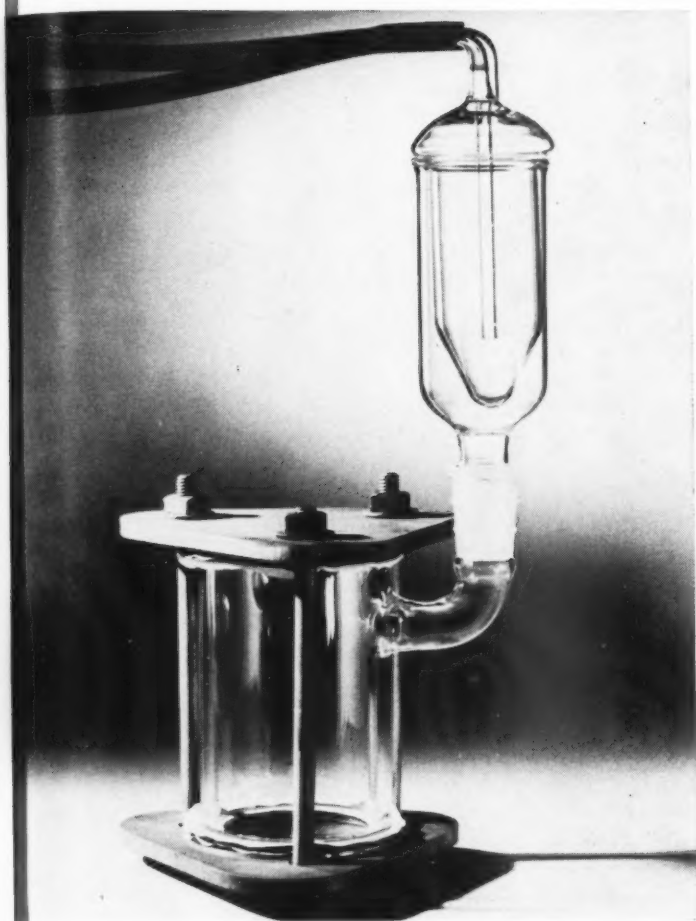


Fig. 3 — Instrument used in testing heavier coatings of porcelain enamel for use on heavy chemical equipment.

be weighed. After testing, the panels are again scrubbed with "Tide", or a mild abrasive, with the aid of a nylon brush, razor, or fingers, rinsed and dried again, allowed to cool in a desiccator, and re-weighed. The loss in weight is determined and reported as milligrams loss per square inch.

Figure 1 shows the typical steam condensate corrosion attack on Porcelain Enamel. Note that the attack is more pronounced around the edges where the greater amount of condensate forms.

Test procedure 1

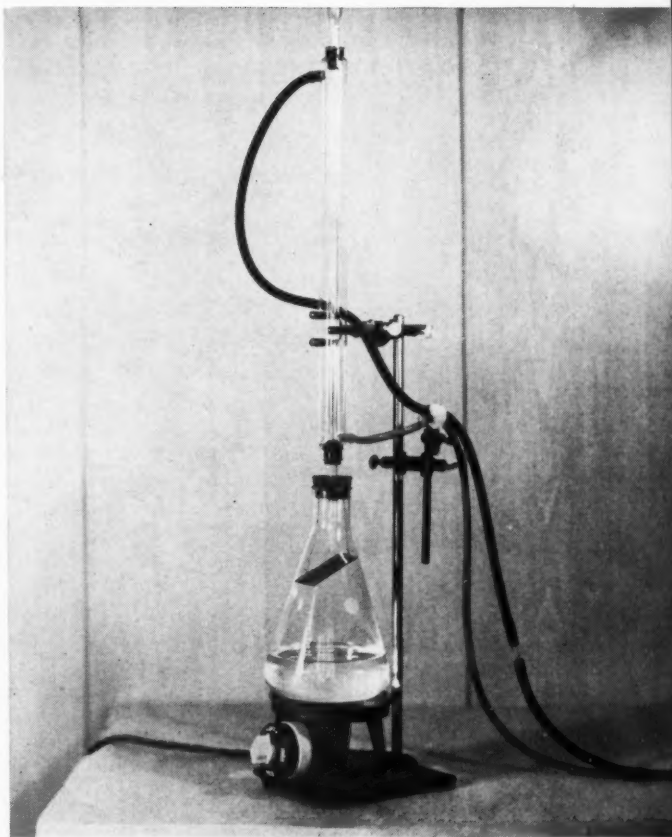
The test equipment in figure 2 is very similar to that used in connection with the accelerated fishscale test. It consists of a 3 in. diameter pyrex tube, 6 in. long, with a hole in the side for a reflux condenser. The test samples are clamped to each end of the tube using a rubber gasket for a seal. With 300 cc of tap water in the apparatus, the test specimens are approximately half covered. The water is heated by means of a Bunsen burner. The cycle of

test for this equipment is 22 hours. With this test there is one feature not common to the other procedures, and that is the means of measuring the degree of corrosion. Besides the normal procedure of either weighing the sample or noting the loss of gloss on visual inspection, the corrosion is determined by means of an insulator tester, using 2,000 volts. The initial porosity is indicated by the number of sparks or breakdowns. With completion of the test, the same measurement is made and the change in porosity noted. The particular instrument used is the Model 404 Hypot made by Associated Research, Inc.

Test procedure 2

This procedure, as shown in figure 3, is meant for heavy chemical equipment where heavier coatings of Porcelain Enamel are used. The equipment is very similar to that in figure 2 except the reflux condenser is offset from the side of the 3 in. by 5 in. pyrex tube, and the apparatus is operated in the vertical position. This results in one panel being submerged in the water and one exposed to the vapor. The equipment is

Fig. 4—Erlenmeyer flask used in testing loss of gloss from steam condensate attack.



either heated by means of a hot plate or oven. The length of test used with this equipment is fifteen days.

Test procedure 3

This test involves suspending a 1½ in. by 3 in. sample inside an Erlenmeyer flask by means of two thin chromel wires as shown in figure 4. A reflux condenser is placed in the neck of the flask. The sample is hung at a 25° angle with the horizontal one inch below the bottom of the condenser. The water in the flask is boiled by placing the flask over a hot plate. The condensate drops from the condenser directly onto the sample plate. The boiling rate is adjusted so that about 40 drops per minute hit the sample plate.

A regular ground coat will show a complete loss of gloss in less than 22 hours. The more resistant coatings will show less evidence of attack after 132 hours. The degree of attack can be evaluated and compared with visually (with or without microscope) and by means of gloss loss measurement.

Test procedure 4

With this procedure the effect of steam condensate on Porcelain Enamel

Fig. 5 — Apparatus for evaluating effect of steam condensate attack by means of a steam jet.

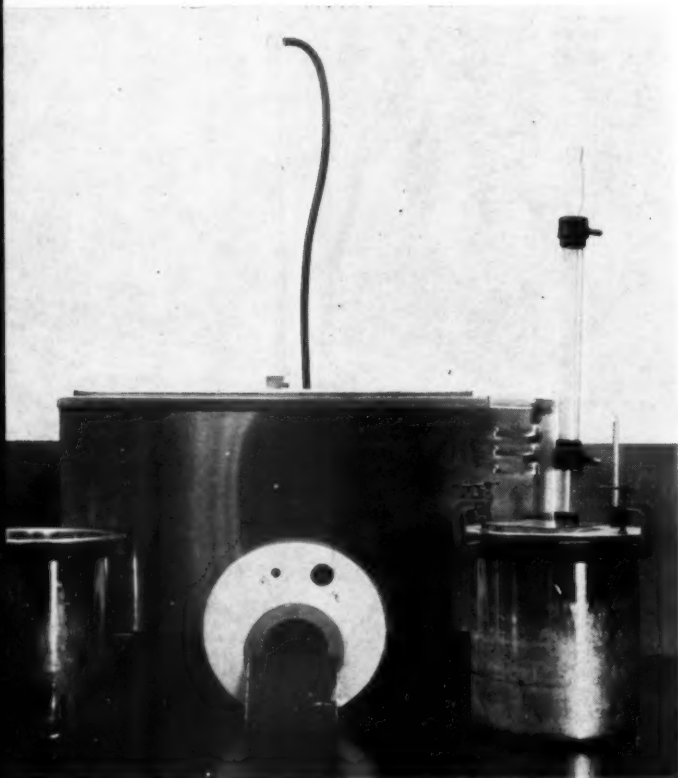
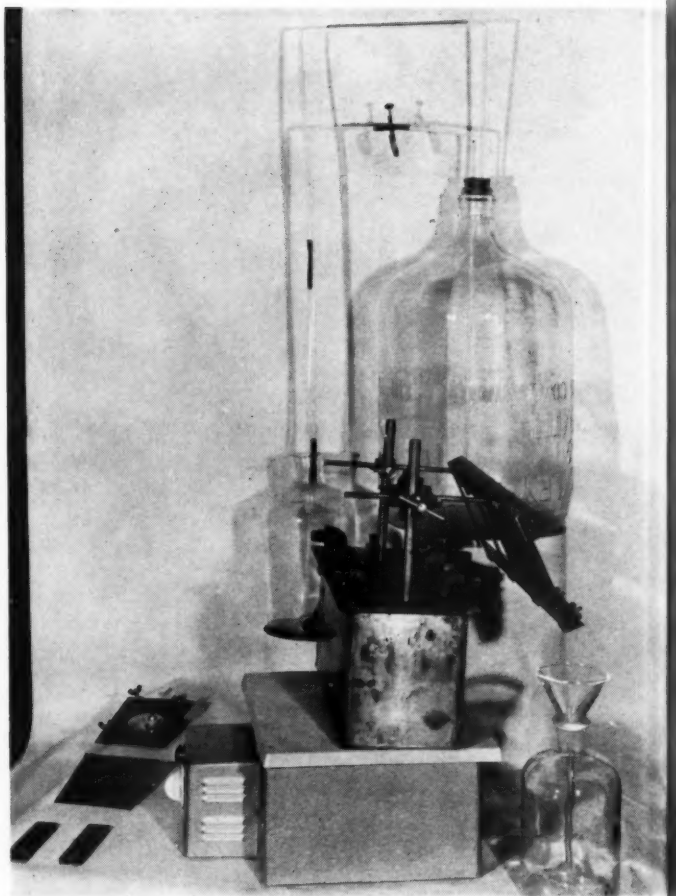


Fig. 6 — Stainless steel tanks which are inserted in a constant-temperature water bath. The test panel covers the hole in the lid, in bottom center of photograph.

is evaluated by means of a steam jet as shown in figure 5. A constant supply of water maintains the solution level in the stainless steel tank. The tank is heated with a hot plate. From the cover, steam jets are directed onto the test panels. The panels are clamped into a fixture and placed on the test rack at a 45° angle with the exposed area centered one inch from the steam jet. The panels are exposed to the condensing steam vapor for 168 hours.

The average losses for enamels tested to date by this procedure are:

Regular alkali resisting enamel

22-24 mgs/sq. in.

White titanium mist spray

18-20 mgs/sq. in.

Vapor resisting enamel (overspray)

8-9 mgs/sq. in.

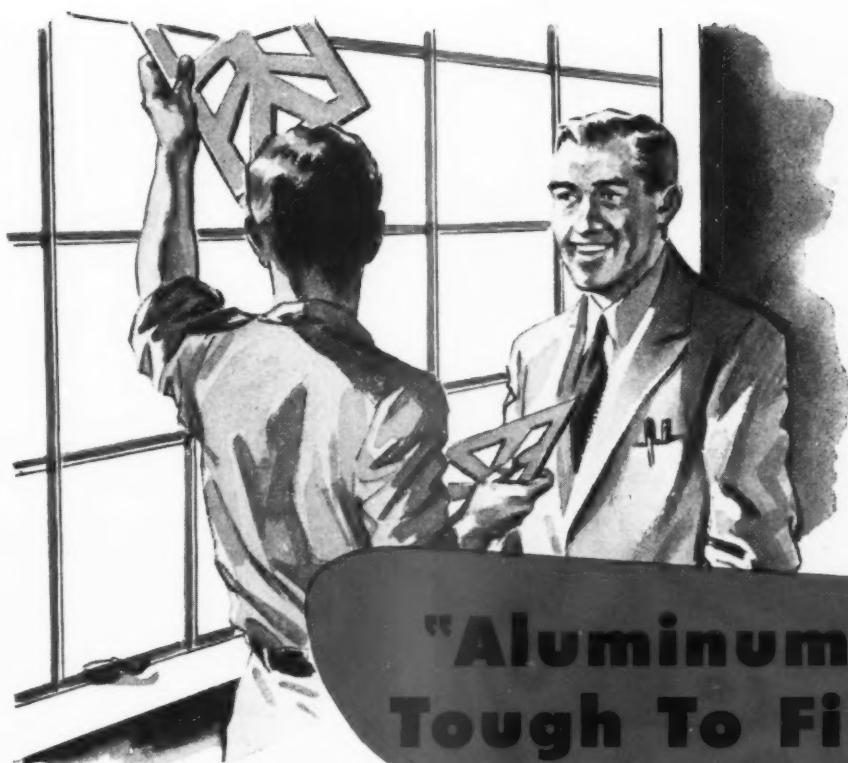
Vapor resisting enamel (2 fire)

4-6 mgs/sq. in.

Test procedure 5

In figure 6 a constant temperature water bath is the main piece of equipment. Into the constant temperature bath operated at 210°F. ± 1° F. are

to Page 32 →



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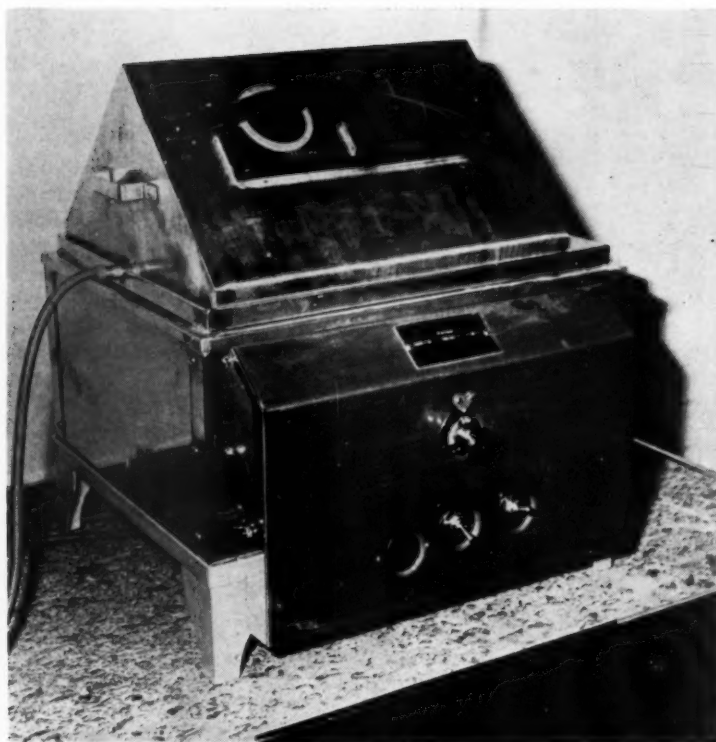


Fig. 7 — Constant-temperature water bath over which test panels are held at a 45° angle.

placed stainless steel tanks with 3 in. holes in the cover. The test panels are placed over the holes and sealed with a gasket and a 2-pound weight. One feature of this test is that it can be run concurrently with alkali type tests where the plates are immersed in the solution. With this test, the length of time is six hours. The loss in weight by this test runs from .09 to .80 milligrams per square inch loss.

Test procedure 6

Again in figure 7 a constant temperature bath is used. The difference between this and procedure No. 5 is the position of the panels. With this test the panels are held at a 45° angle by means of a sample holder, while in procedure No. 5 the test panels are horizontal. Condensate is removed from the system continuously so that the attack is made by steam from boiling fresh tap water. With this test the panels are run for a period of 24 hours. At the end of the test the loss in milligrams per square inch can vary from 0.5 to 44 depending on the type of enamel being tested.

Test procedure 7

In this test procedure, as shown in figure 8, the equipment consists of a constant level water supply, test tank, and hot plate. The level is maintained in the water supply tank by means of a

float valve. The cover of the test tank acts as the fixture to hold the samples. One of the features of this equipment is the number of samples which can be tested at one time.

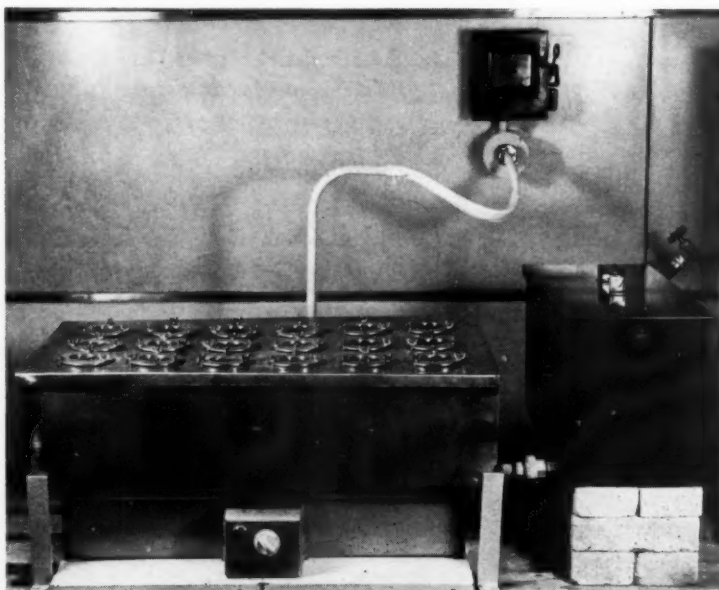
Summary

Here is a summary of a few conditions which appear to warrant further consideration.

1. Some investigators have reported that the angle of the panel is very important. If the panels are in a position that the droplets formed are retained on the panel, a selective etching will be encountered. Others have reported no variance in the etch due to formation of droplets.
2. The temperature of the test specimen has been reported as being very important. They have reported that the attack diminishes very rapidly below 190°F. Above 200°F. very little steam condensate forms on the panel. This seems to point out the importance of controlling the panel temperature.
3. Several of the procedures take into consideration the rate or amount of steam condensate formed as means of controlling the amount of attack.

Adapted for MPM from a presentation at the 18th annual FEL Shop Practice Forum.

Fig. 8 — Equipment for testing many specimens at one time.



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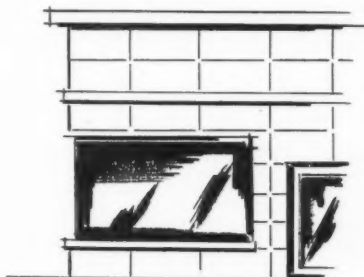
RANGES



REFRIGERATORS



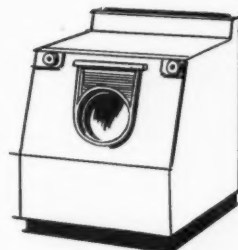
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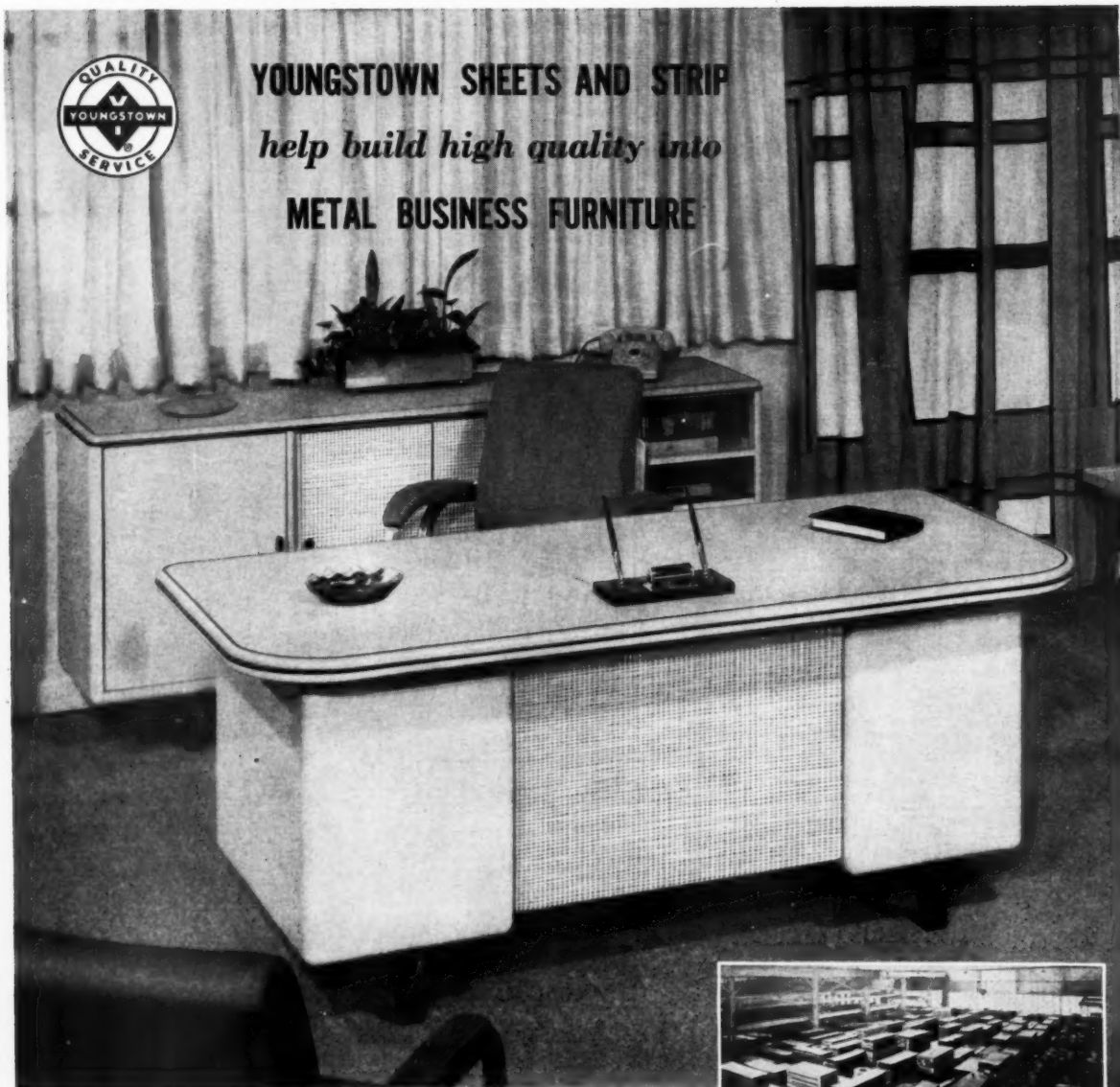
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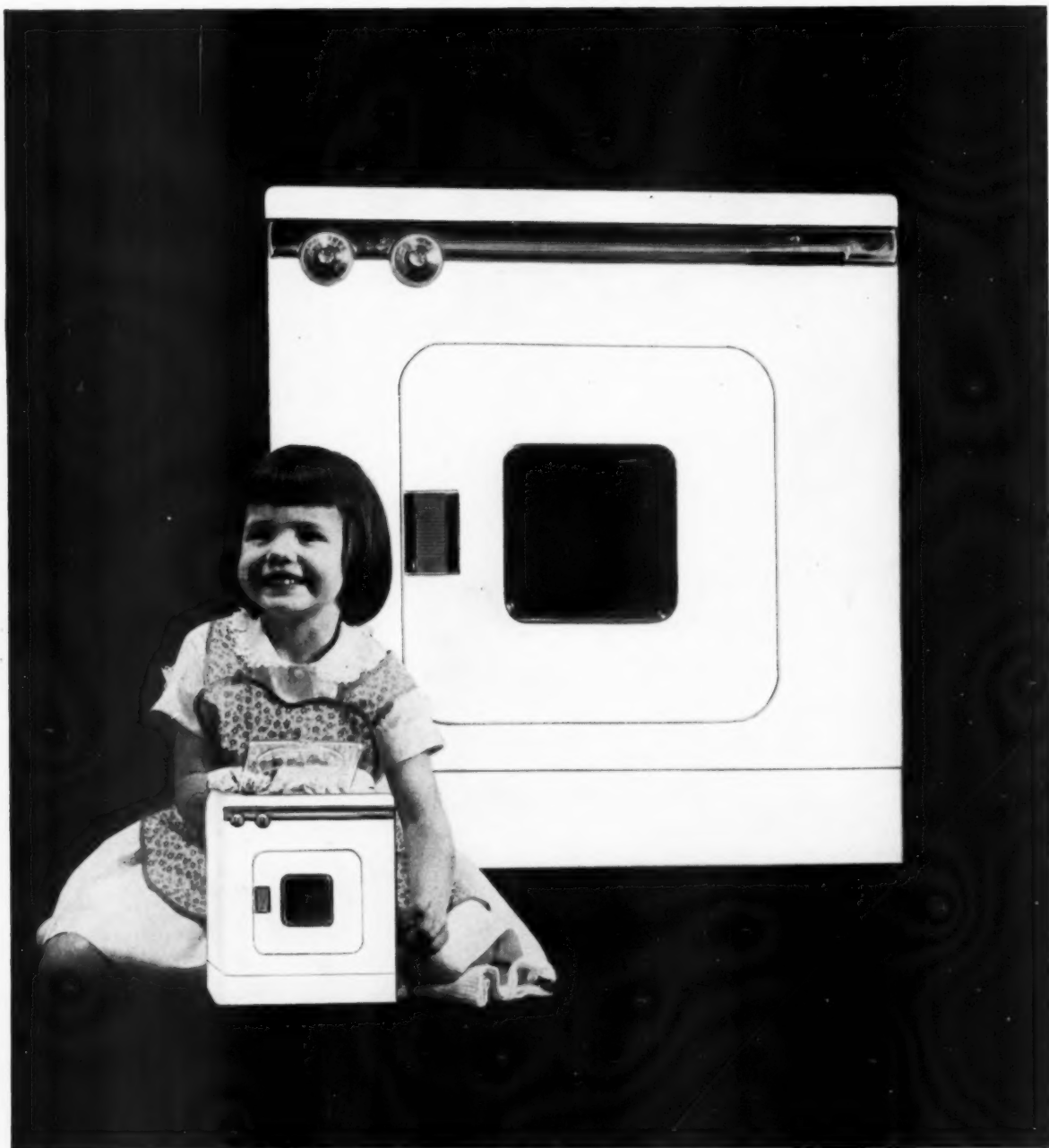
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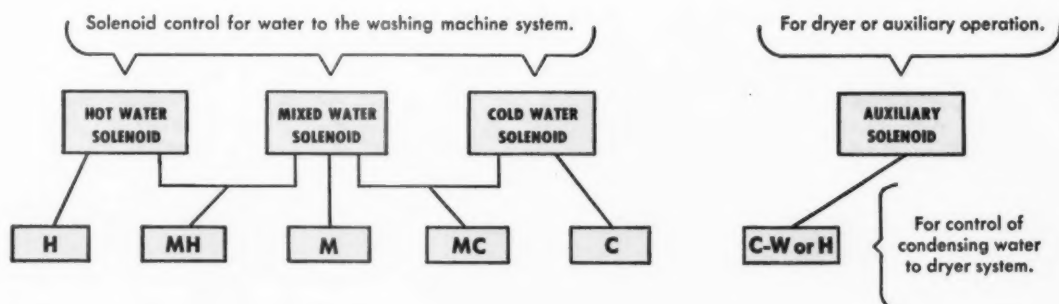
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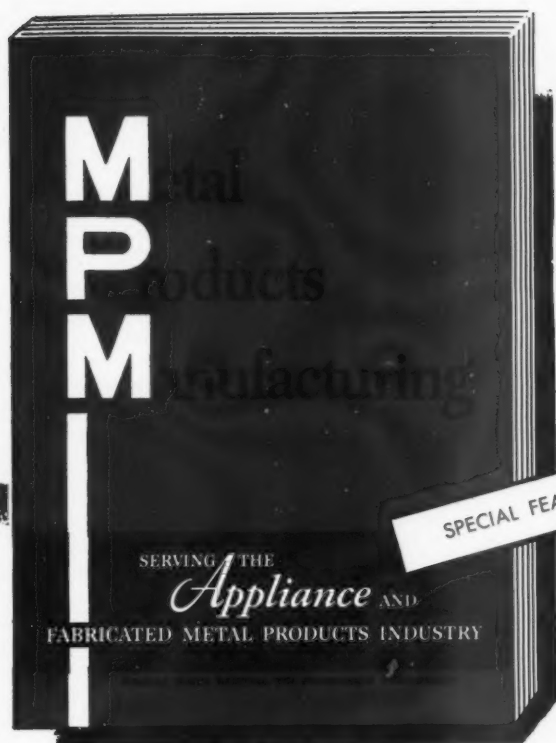


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11

TH ANNUAL SALUTE TO THE HOME LAUNDRY APPLIANCE INDUSTRY

PRESIDENTIAL SALUTE

BOTH officially as president of the American Home Laundry Manufacturers' Association and personally as a reader of *METAL PRODUCTS MANUFACTURING*, I am happy once again to commend your annual home laundry appliance industry special section. During the last 11 years that this special section has been a feature of your magazine, your editorial efforts in collecting industry information and disseminating it to your readers in an interesting, educational and objective manner, have been excellent.

This year, more than the usual amount of attention has been focused on home laun-

dry appliances because they are considered by many to be the bellwether of the appliance industry. Rather than lament this sales lag, I hope the industry's members have used it as an incentive to improve the individual companies' performance and procedures in finding ways still to operate as profitably as possible even in the face of decreasing sales. We expect to end 1957 on an optimistic note; it may well be our second best sales year in our history. Projections for 1958 look even more encouraging.

Through the last 11 years, MPM has been on hand to chronicle industry sales, events, meetings and activities, and spread news of important new developments in appli-

ance manufacturing operations. On behalf of all AHLMA members, we appreciate your continued interest in the activities of the home laundry appliance industry, and in your efforts in publishing this annual section.

B. J. HANK, President

American Home Laundry Mfrs. Assn.
President, Conlon-Moore Corporation

FROM THE EDITOR'S DESK

Our editors are appreciative of the wholehearted cooperation by the AHLMA staff, the active and associate members and all the manufacturers of the industry who cooperated in the preparation of this salute to a growing industry.

DANA CHASE
Editor & Publisher

FEATURES

The Long Run Still Looks Good HL-7
by Guenther Baumgart, AHLMA Executive Director

Engineering A Completely New Automatic Washer Mechanism HL-11
the background in this big achievement

How the Hotpoint Automatic Washer Mechanism Operates HL-12
a complete engineering description

Expanders Prove Effective in Producing Washer-Dryer Components HL-16
by Larry Holtz, Automation Engineer,
Whirlpool Corporation

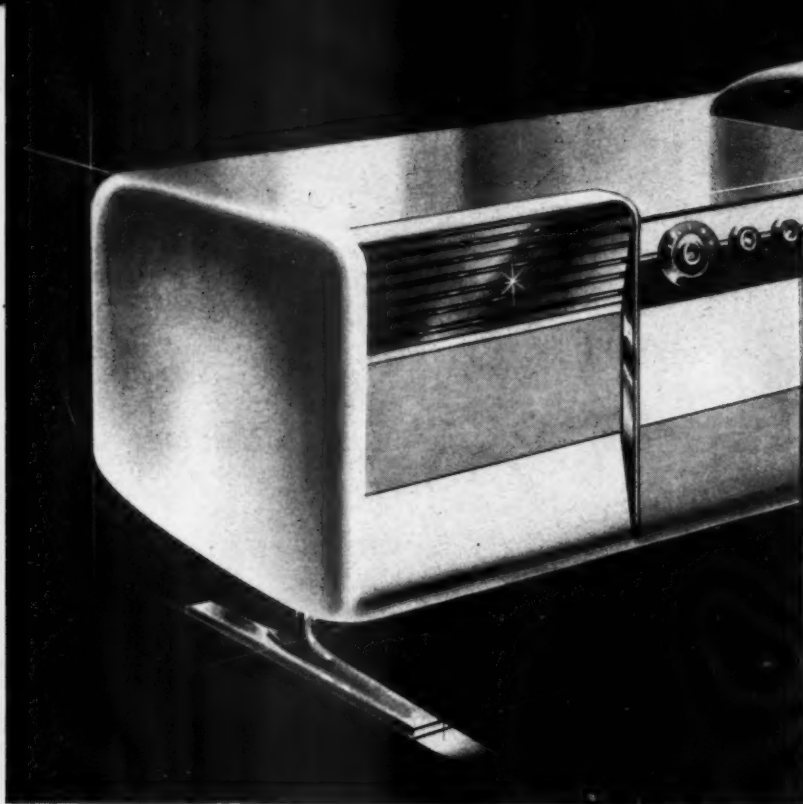
The Service Problem in Home Laundry Appliances HL-22
by Margaret Davidson, Ladies Home Journal

The Future of the Home Laundry Appliance Industry HL-26
by Executives of Home Laundry Manufacturers

The 1958 Home Laundry Appliances HL-30
pictorial review of the latest models

Mrs. Home Laundry Queen Contest HL-30
a chance to select the 1958 Queen

The 1957 Home Laundry Conference HL-41
by Rye Amthor, Conference Planning Chairman

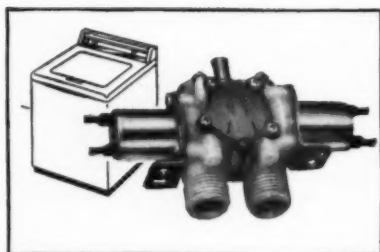


TOMORROW'S APPLIANCES

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their control
problems be?*

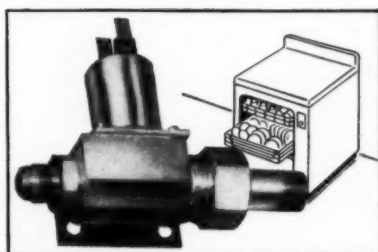
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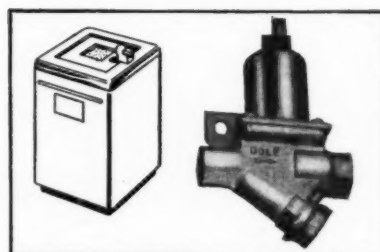
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The long run still looks good!

by *Guenther Baumgart* • EXECUTIVE DIRECTOR, AMERICAN HOME LAUNDRY MANUFACTURERS' ASSOCIATION

FACTORY sales of home laundry appliances for the first six months of 1956 were down 19 percent from the corresponding period in the previous year.

Furthermore, factory sales moved down in the first half of 1956 while the nation's gross national product was moving up 5 percent; personal income was up 5 percent; and even personal expenditures for durable goods went up from a \$33.3-billion dollar annual rate in the second quarter of 1956 to \$35.0 billion in the second quarter of 1957. The population of the U. S. rose from 167,824,000 at mid-1956 to 170,859,000 at mid-1957.

But washer, dryer, and ironer sales declined.

Why?

At the end of the old year, few in the industry seemed to be expecting this turn of events. In November, the industry's year-end forecasts indicated that 1957 would best 1956 by 200,000 units and establish a new peak for the third consecutive year. (These projections have since been revised, of course.)

Two kinds of economic measures may help throw some light on the situation: First: Rate of growth measures and, Second, related measures which turned down earlier.

Comparative growth

First: How fast has the industry grown in the last five years as compared with the nation as a whole, and as compared with its own former self?

Let us compare home laundry appliance factory unit sales with a broad, overall measure of national growth, the Federal Reserve Board Index of Industrial Production. Both are physical measures. Price is not involved. Start with 1952=100 for each and the results are shown in the accompanying table.

Over the period from 1952 through the first half of 1957, the home laundry appliance industry was gaining much faster than U. S. industry as a whole.

But note how it jumped in 1955 and 1956. *It still is, in fact, gaining faster than the national production—in the ratio of 123 to 115, even taking into account 1957's first half down turn.*

Even if the 20 percent down turn continues — and, for reasons given later, it probably won't be that bad — the factory sales will still be 5 million units, and that will be better than all years except 1955 and 1956 (and about equal to the previous boom of 1950).

Business is still very good by all standards except 1956 and 1955. However, these were indeed unusually good years — perhaps just ahead of their time on the trendline by a year or two or three. Except for them, 1957 is a normal, healthy, growth year, carrying on the strong growth trend from 1952 for home laundry appliance units.

1952	3,991,408 total units
1953	4,311,330 " "
1954	4,747,168 " "
1957	5,000,000 (or more) total units

Stimulating outlook

As one of our industry leaders pointed out earlier this year: "Stimulating" is a very good adjective to use in describing 1957's outlook for the appliance business, but it is even more appropriate in describing the next decade for this industry.

"The appliance industry has now become a mature, and an important, segment of the economy. It ranks third behind home building and automobiles in annual sales of consumer durable goods. Its forward pace, which appears to be

at a rate of about two times the rate of growth of our total economy, is built upon four prime factors; First, the population growth; Second, the redistribution of wealth which has quietly revolutionized the market. (In 1940, the average family in the United States earned only \$2,000. Today, families earn an average of \$6,500 and even that figure is rising steadily.)

"Third, the appliance industry has invested huge sums on an ever increasing scale to engineer and design more attractive products that do much more for the housewife, and at a price that excites her appetite to buy. The fourth significant factor is the need and desire for modern appliances. More women than ever are working outside the home — more women than men have joined the national labor force in the last five years. This trend goes hand in hand with strong appliance sales.

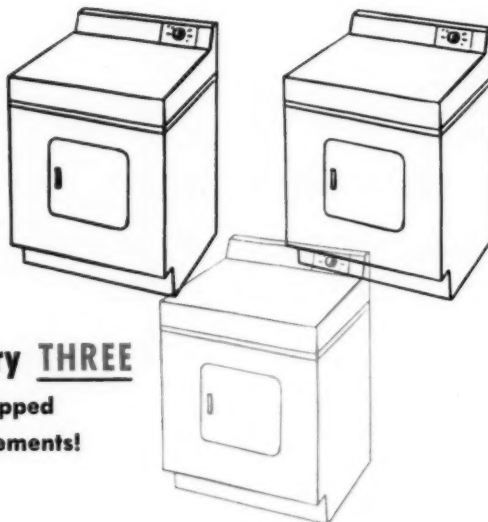
"Principally for these reasons, appliances predictions show a strong upward surge for years to come. The line zig-zags upward, of course. We predict that 1957 will zag slightly and show sales — of less than average growth — for this industry."

If this be true, the growth of one home laundry appliance industry is still evident, and the outlook is strong. The underlying foundations of good business for the industry are the same as they have been all along.

The market potential is increasing as the population increases — more families and babies — more laundry. Soon the war time baby boom will be show-

	F. R. B. Index Industrial Products	Home Laundry Appliance Factory Sales
1952	100	100
1953	108	109
1954	101	112
1955	112	143
1956	115	153
1957*	115	123
* 6 months		

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Hard to get household help (the people are fully employed at other higher paying jobs), and the inevitable trend to individual homes in the suburbs, join with the new homes and new babies to give the "desire to have" element of effective demand—for home laundries and, of course, all the other modern appliances.

The unsaturated market

For home laundry appliances there is, in addition, an unsaturated market potential in three products which are essentially brand new; the automatic washer, the automatic clothes dryer, and the combination washer-dryer.

These products are in less than half the 47,415,000 wired homes—and the new control features built-in to match new fabric characteristics are so different from previous years as to make the effective potential even greater than

the statistical one.

This is a quick analysis of but two variables, of which there are many, that are well worth continued study when determining management policy. Careful thought should be given along these lines, not only to variations around long-term trends, but also to more subtle relationships such as manufacturing break even points and price policy, production scheduling and inventory policy, and plant expansion costs, now and in the long run. These things each manufacturer must resolve effectively in his own way to complete, and to maximize his profits or minimize his losses.

In whatever way these questions are resolved, remember that the industry is strong, and it would be doubtful interpreting indeed to conclude that the current slide from a year ago is a real omen of more serious trouble.

With the strength of hindsight, and with all the data in, let us look a moment at whether we could have called the turn in home laundry appliance sales before it came last January.

A look at the previous 36-48 months data on the home laundry appliance in-

dustry itself would yield only the strong impression that the industry's seasonal swings were around a long-trend curve increasing more rapidly each year. Therefore, even conservative projections on this basis would have indicated continued increases.

But this is "in-breeding".

Six factors in the "Zag"

Other factors were available which, it appears, may have been more important than they were thought to be at the time.

Examples of these are:

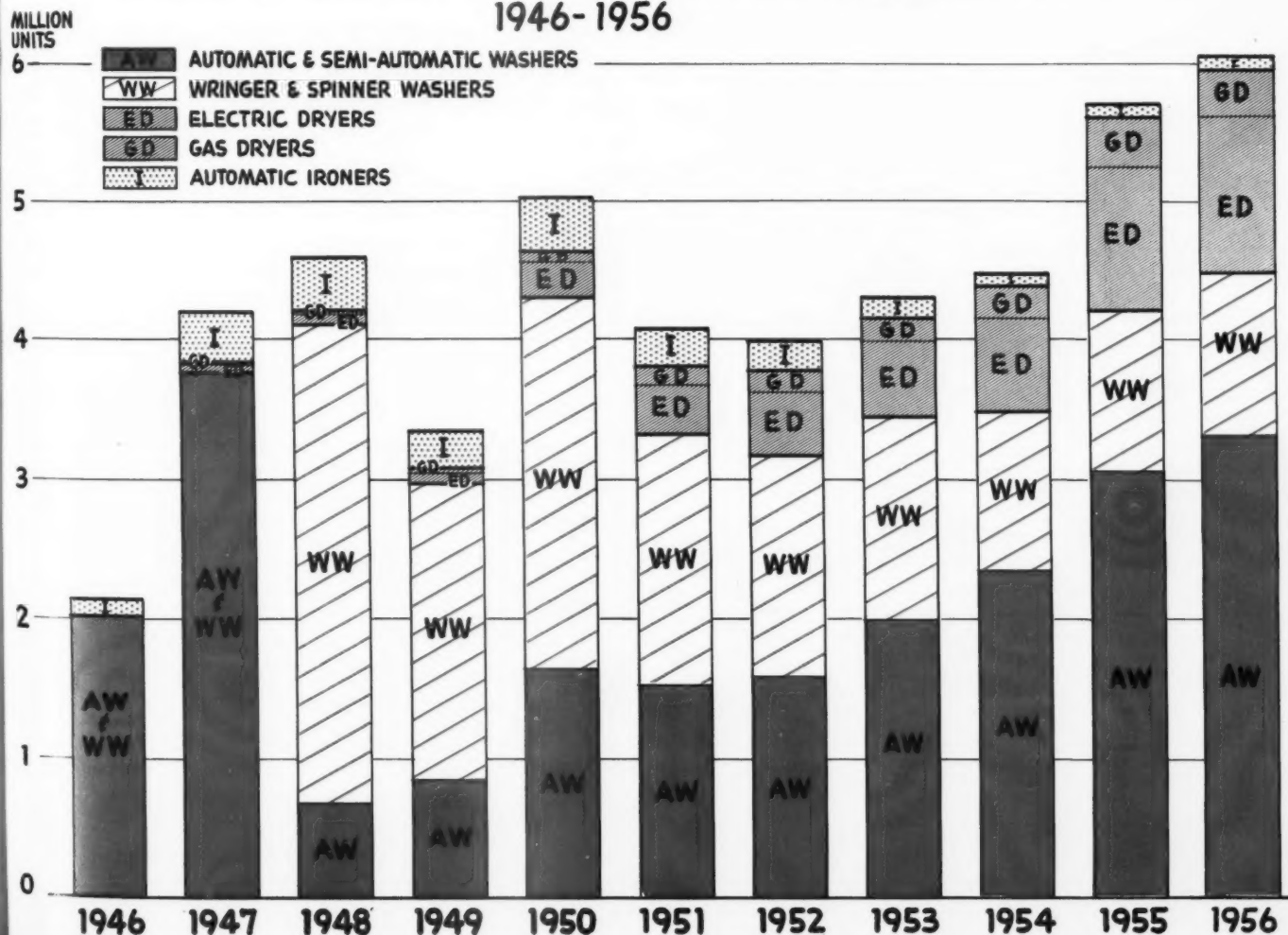
1. Housing starts trends, (seasonally adjusted) turned down in January, 1955, and continued down through 1956—they may be leveling now.

Although the drop is in the nature of 200,000 per year, and not all new houses match one-to-one with home laundry appliances, there was cause for caution in this trend well in advance of our own leveling off.

2. Although employment continues high, average weekly hours worked in manufacturing has leveled—dropping

to Page HL-38 →

Factory Sales - Home Laundry Appliances 1946-1956





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Engineering a completely new automatic washer mechanism

a compressed schedule, and the task force technique, provide Hotpoint's answer to the field service problem for 1958

WHEN new top management took over the responsibilities of Hotpoint's home laundry business in late 1955, it faced the initial job of surveying the industry, the products, and organization. The task was to come up with a plan that would place the company in a favorable spot, product wise and business wise, on an industry-wide basis.

Industry studies showed an unparalleled growth in the major appliance field and a replacement market that seemingly assured a continuing growth through at least the middle 1960's.

In the product study, Hotpoint management soon came face to face with the number one problem requiring attention if the company were to attain its share of the home laundry business — Field Service. The lack of ability to assure prompt, intelligent, courteous service to consumers, whether they lived in New York City or on a farm in North Dakota, was resulting in an increasingly-unhealthy situation at the consumer level. The prompt servicing of the appliance (either in or out of warranty) in the consumer's home was necessary to assure customer satisfaction and protect future sales.

A second factor in the product study involved the noise level in home laundry appliances. The problem of noise had not been great in the past when the laundry room was normally in the basement. Now, with many laundry appliances being moved into the kitchen and bathroom alcoves, it appeared that special attention must be given to the reduction of sound levels.

The complete review of the company's home laundry products indicated that an entirely new mechanism should be designed for the automatic washer, keeping in mind the all-important service problem and also quietness of operation.

The engineering objective was to design a machine to quality specifications which, through proper control at all levels, would operate with an absolute minimum of service in the consumer's home. The problem of service in the consumer's home was to be further simplified by designing a sealed-type as-

sembly with a minimum of external adjustments. If the mechanism should fail for any reason the service man would then have no alternative but to make a complete replacement of the mechanism.

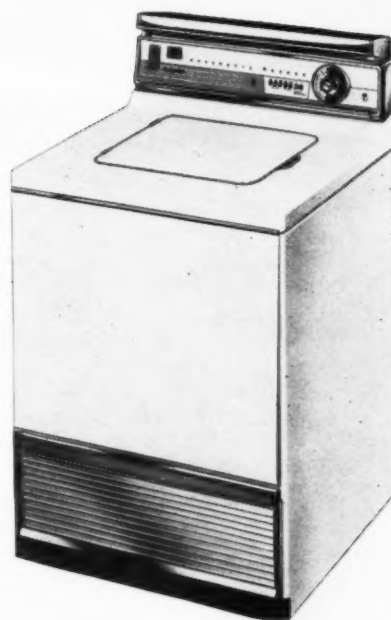
With the "sealed mechanism approach" to the service problem, the company could feel reasonably certain that an improperly trained service man could not make a wrong adjustment that would involve subsequent service calls in order to correct the original difficulty.

Compressing the schedule

The design and the laboratory and field testing of the new mechanism was pushed through Engineering and into pilot production in approximately twelve months. Hotpoint is quick to point out that the engineering know-how of suppliers was utilized and found to be valuable in arriving at final designs and tolerances. It was found with pilot production that the high degree of precision required made it necessary to carefully scrutinize the production and inspection routines of suppliers. Throughout the design the question of noise was given paramount attention. Special sound booths were built to check noise levels on the individual components as well as on the complete mechanism.

The task force of experts

After the pilot runs and limited production runs had been completed, a Task Force, including top engineering and manufacturing personnel from the services division of the General Electric Company, was organized to make a complete review of the mechanism. These experts were chosen for their specialized knowledge, without regard for any previous connection with home laundry equipment. For instance, there was a gear expert from the general engineering laboratory, two designers from the gas turbine division, metallurgical engineers, and an engineer specializing in bearings and stress. The task force was headed by a consultant of the engineering services division of GE. This group worked with a minimum of contact with



the Hotpoint engineers to completely review the mechanism, from detailed drawings through the production cycle.

The job of the task force was to complete an objective appraisal of the unit, and to ascertain the possibility of modifications to improve quality or reduce cost before the assembly would be put into complete production in September of this year.

As had been expected, the task force, with its specialized engineering knowledge, did come up with a number of design improvements which were incorporated. As this is written, the new Hotpoint automatic washer mechanical assembly is in the final stages of preparation for volume production. It will go into all of the 1958 models scheduled for production this fall.

Management at Hotpoint's home laundry department believes that, with the new coaxial transmission unit and the completely re-designed new assembly, two major objectives have been accomplished: the future reduction of field service and the minimizing of the operating noise level. With the cooperation of its principal vendors, Hotpoint engineers say they have designed with the premise that it is easier to *build* quality into a product than it is to *inspect* it in.

to next Page →

The editors of MPM wish to acknowledge the assistance and conference time of three men of the Home Laundry Department in connection with the preparation of this engineering feature; Management — R. M. Spang, General Manager; Engineering — Roland Warner, Manager of Engineering; Production — Wm. Weber, Jr., Manager of Manufacturing.

How the Hotpoint automatic wa

Operation of the Coaxial Transmission

THE transmission is powered by a 1725 R.P.M. 1/3 H.P. split phase reversing motor. A "V" belt speed reduction drive transmits power to the mechanism pulley. Clockwise rotation of the mechanism pulley (1) produces agitation, and counter-clockwise rotation produces the desired spin cycle.

Agitation Cycle

During the agitation cycle, contacts within the timer energize the main motor (1) turning the shaft in a clockwise direction. The rotation of the mechanism pulley (2) coupled with specially-designed slots in the clutch shoes (3) prevents contact of shoes with the clutch drum (4). The clutch shoes are located on the mechanism pulley by two sets of pins, and the movement of the shoes is restricted only by the slots. Two extension springs hold the shoes toward the center contacting on the outward surface of the slots during the rest period.

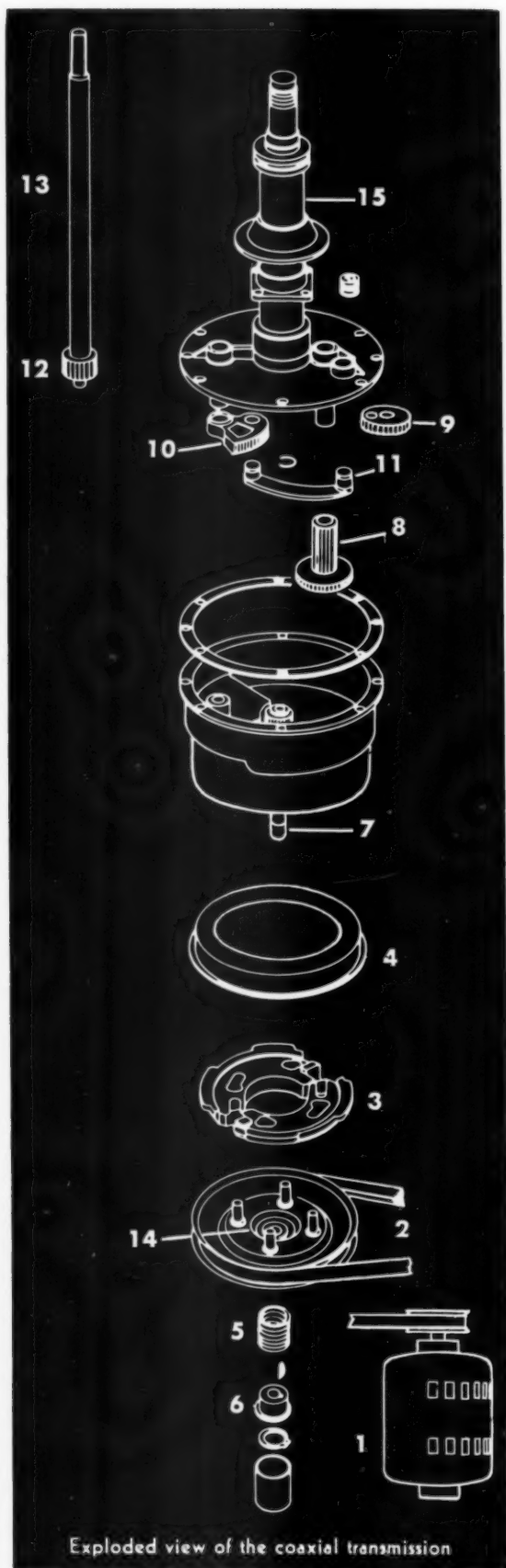
At the beginning of the agitation cycle, the clutch shoes are at rest in the position as shown in View A. The initial start of the pulley in the clockwise (agitate) direction changes the relative position of the shoes and pins as shown in View B; thus preventing contact with the clutch drum. The spring clutch (5) locks the mechanism pulley hub to the clutch hub (6) which is keyed to the pinion shaft (7) providing a direct drive to the gear train.

The pinion transmits torque to the intermediate gear (8) and, in turn, to the crank gear (9) providing two speed reductions. The crank gear drives the sector gear (10) by means of a connecting rod (11). The sector gear then drives the agitator gear (12). One revolution of the crank gear produces one complete oscillation of the Thriftivator shaft (13).

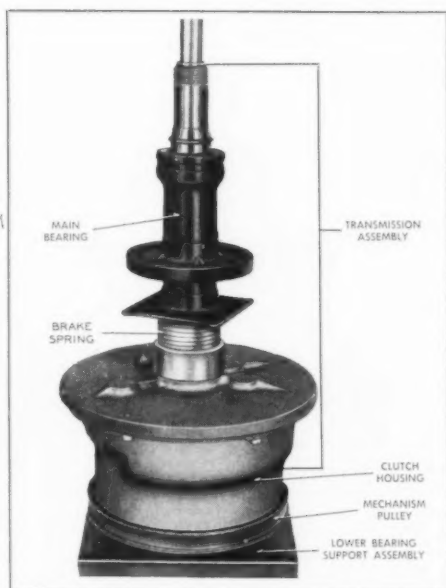
During the agitation portion of the operating cycle, the forces producing clockwise basket rotation are in excess of those providing counter-clockwise motion. Because of this, the wash basket with its clothes and water load will gradually begin to spin clockwise during the agitate cycle. As shown in Figure 1, a spring-type brake has been provided to prevent this clockwise rotation. The spring brake functions by tightening on the main bearing housing of the transmission assembly so as to prevent clockwise rotation of the unit.

Spin Cycle

After completing the agitate cycle, the clutch shoes come to rest in the position as shown in View B. Contacts within the timer energize the motor, turning it in a counter-clockwise direction. As the motor reverses direction, the initial start of the pulley changes the relative position of the clutch shoes, with respect to the pulley pins as shown in View A. The slots are now in location to permit outward motion of the shoes, and centrifugal force urges the shoes into contact with the clutch drum as in View C providing the torque to spin the basket and the transmission mechanism. The mechanism pulley turning in a counter-clockwise direction releases the pulley hub (14) from the clutch hub (6)

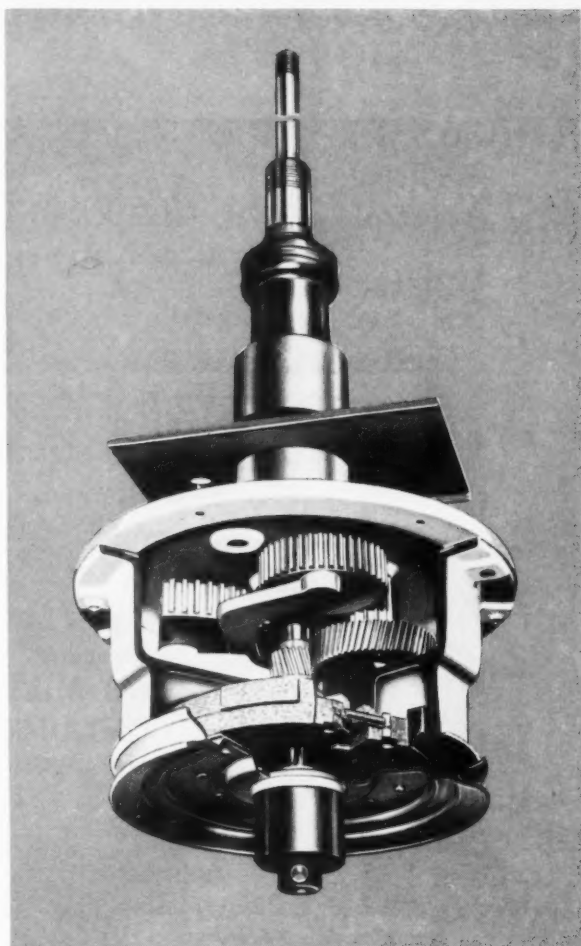


idwasher mechanism operates



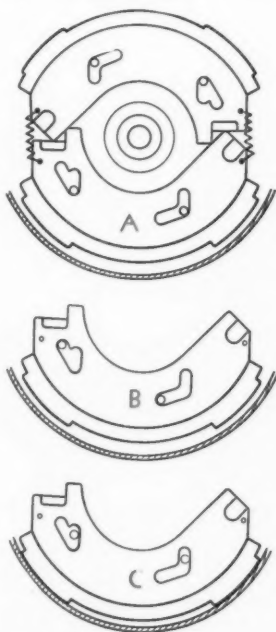
External parts of the coaxial transmission.

by unwinding the spring clutch (5) and thereby disconnecting the gear train. The clutch shoes (3) are automatically released from the locked position and engage and drive the clutch drum (4). The clutch drum is fixed to the transmission housing and spins the entire transmission assembly supported by both the main bearing housing (15) and the lower bearing support assembly.

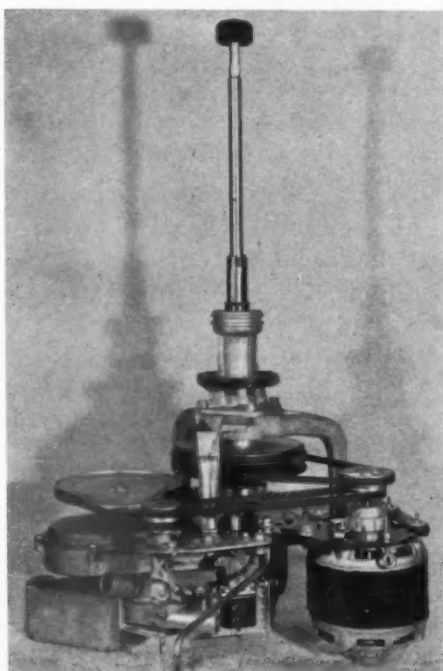


Cutaway section of the coaxial transmission, showing the gears and clutch.

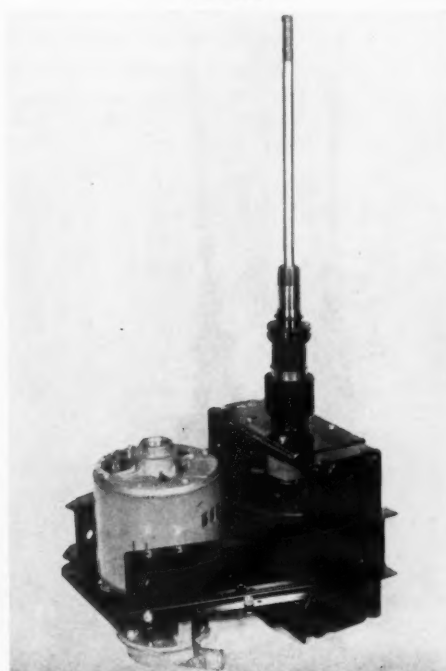
Operational views of clutch.

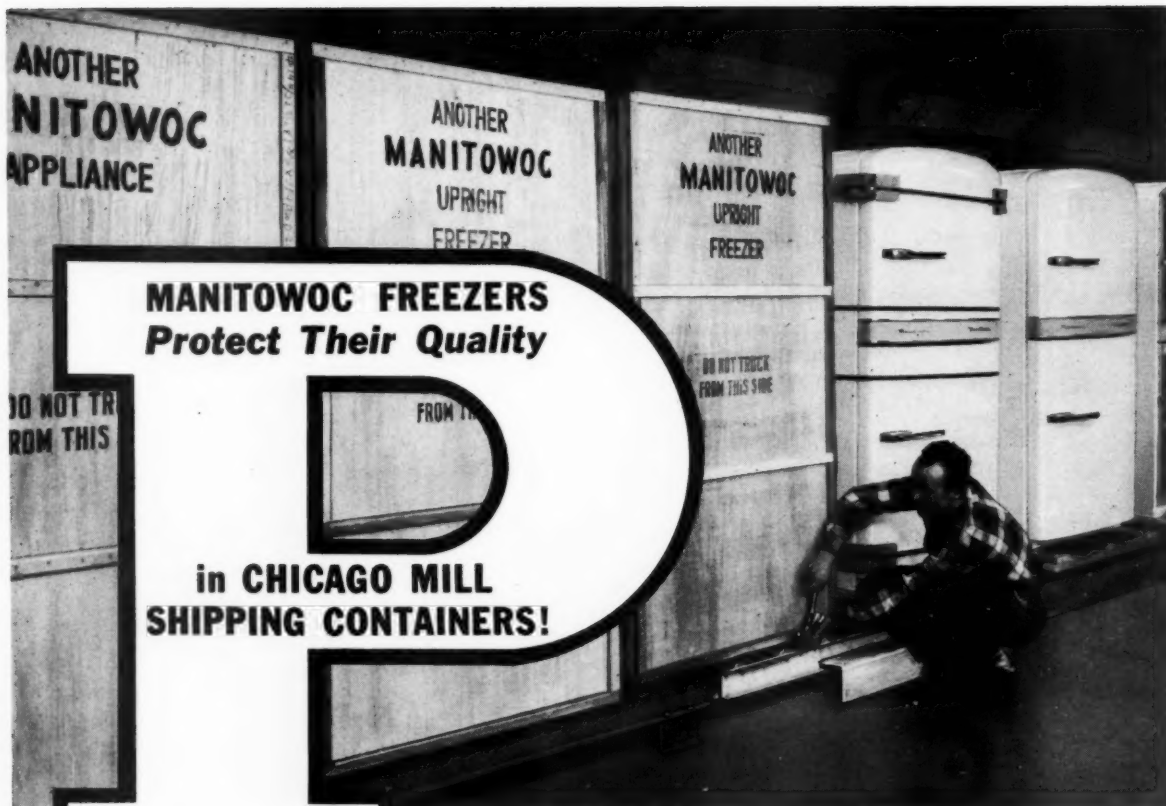


BEFORE



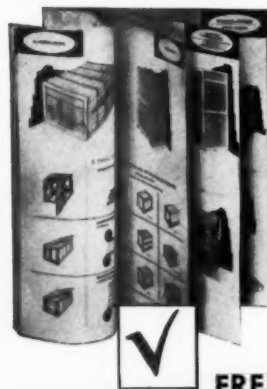
AFTER





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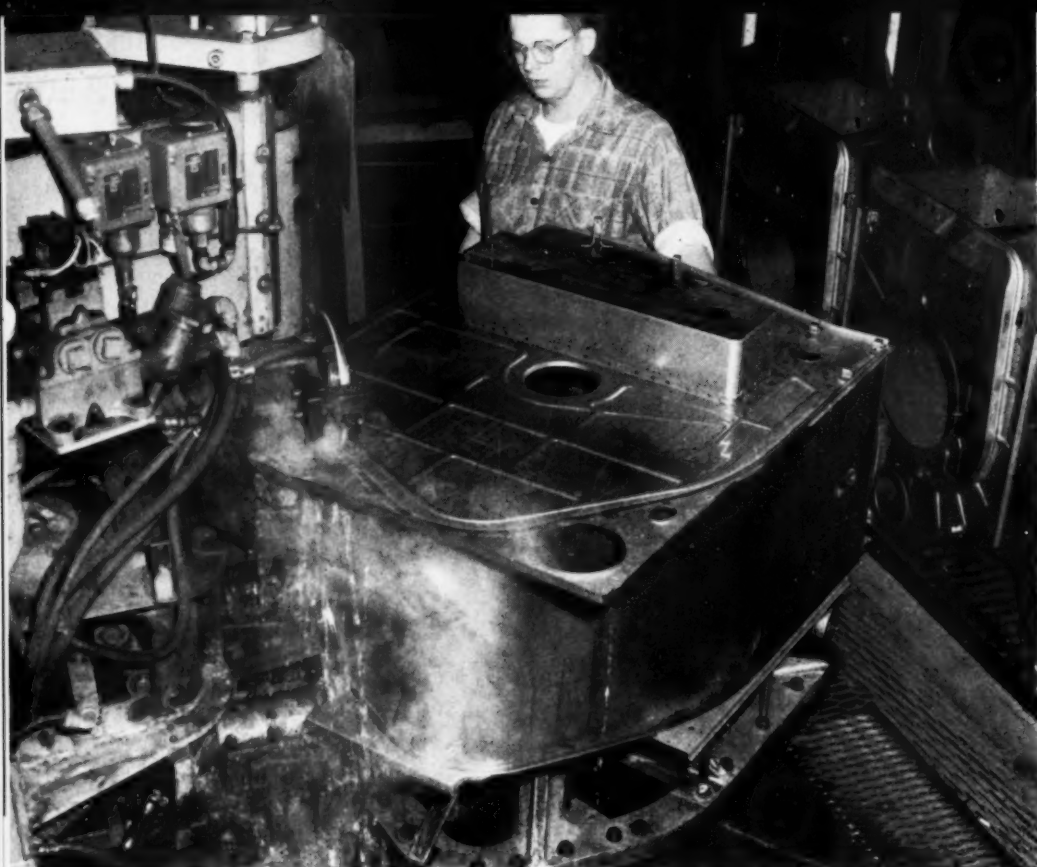
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Making two simultaneous seam welds in a special machine that joins two oblong pierced and embossed stampings to the flanges of the stamping, forming the bottom and narrow sides of the tub and, at the same time, following the unsymmetrical contour perfectly.

Expanders prove effective in producing washer-dryer components

fit into setups for making outer housing and barrel of perforated drum — unusual press setups produce U-shaped component of tub

by Larry Holtz • AUTOMATION ENGINEER, WHIRLPOOL CORPORATION, ST. JOSEPH, MICHIGAN



Housings of approximately square section, but with "radiused" corners, are among the major components of the new combination washer-dryer built by Whirlpool Corporation. These steel shells and many other assemblies are being produced at our St. Joseph, Mich. plant. Some setups for this production are on a temporary basis, including that of an expander, here illustrated, but are working well. Although one expander is now in a temporary location and largely above floor level, relocation below floor level is to be made and the machine will con-

tinue as an important unit in the revised setup now in preparation.

Other temporary machines include a vertical former having expanding dies, and a spot welder now employed to make the vertical seam that joins the ends of the housing wrap-around. These units are to be replaced by a tangent bender that will do initial forming of the housing, and will include an automatic seam welder for fastening the ends of the blank after forming it but before the housing is removed from the bender.

Present shell production starts with preparing a steel blank that measures $35\frac{3}{4} \times 105\frac{3}{4}$ in., and is trimmed, notched, and pierced in a large press. After this blank is curled into cylindri-

cal shape by hand, the two ends are fastened by a series of spot welds in a temporary setup. This shell is lifted by a hoist and then lowered over the initial "homemade" forming machine in a temporary setup having four triangular forming shoes or dies arranged 90 degrees apart in ways for radial outward movement when mating tapered shoes are pulled downward by a hydraulic plunger.

Notches that come at corners position the wrap-around in this machine and, when the dies move outward, they convert the cylindrical shell into a nearly-square housing. When the dies retract, the partly-formed housing is lifted by a hoist. This initial forming is to pro-

vide a shell that will fit into the expander. In the permanent setup to be made soon, the working platform of the expander, now set flush with an elevated platform, will be flush with the floor of the shop.

After the shell is placed in the expander an elevator, that is in "up" position for loading, lowers the shell until it is all below platform level and in forming position. Events in the forming cycle are then as follows:

1—Four corner die blocks are expanded by downward hydraulic pull on a central wedge. These blocks move radially outward into the four corners of the preform and, in so doing, stretch the metal, increasing the girth about $2\frac{3}{8}$ in., producing the final radii at corners and pulling the metal flat on the four sides.

2—At the same time that the corner die blocks move out, four inner die sections, one opposite each face, are moved outward. Simultaneously, four external dies, one opposite each face, are moved in hydraulically. The result is that each face of the housing is clamped between an inner and an outer die block. In this case, two external blocks on opposite sides have projections, and corresponding inner blocks have mating recesses, with the result that debossing is done on these faces as the metal is clamped between opposing blocks. One face is given an inward bulge where an instrument panel is applied subsequently. Near the end of this part of the cycle, external die blocks wipe across top and bottom faces of inner blocks and form inward flanges on all sides of both top and bottom ends.

3—After the above forming and embossing operations are complete, all die sections are retracted, freeing the shell which is then moved up automatically by the elevator. When elevating is completed, the shell is hoisted out.

In the final shell setup, it is expected that the expander cycle will require about 15 seconds, hence production should approximate 240 cabinets an hour. Net results attainable with the expander are similar to those currently attained on similar cabinets in tangent bending plus certain supplementary operations. These latter, however, require one or more added operations on large, heavy press for flanging and embossing the blank before it is delivered to the bender. In an expander, both embossing and flanging are done in one operation.

Another machine, although called an "expander," might be called a "contractor" because the forming it does is radially inward rather than outward,

although some stretching action is produced. This machine does some of the forming on drum cylinders that are first pierced with several hundred small holes, and are debossed between panels that contain the holes while the stock is still in strip form. Before being placed in the "expander," however, the ends of the strip are joined in a seam welder after being bent by hand to cylindrical shape around the mandrel of the welder.

After welding, the exterior of the cylinder is cleaned of weld scale, and of burrs around the ends of the small pierced holes by machine wire brushing. In this machine, long cylindrical wire brushes, turning on vertical axes, at each side come in contact with the cylinder as it is rotated slowly on a holder that fits the inner surface. These brushes also clean the weld.

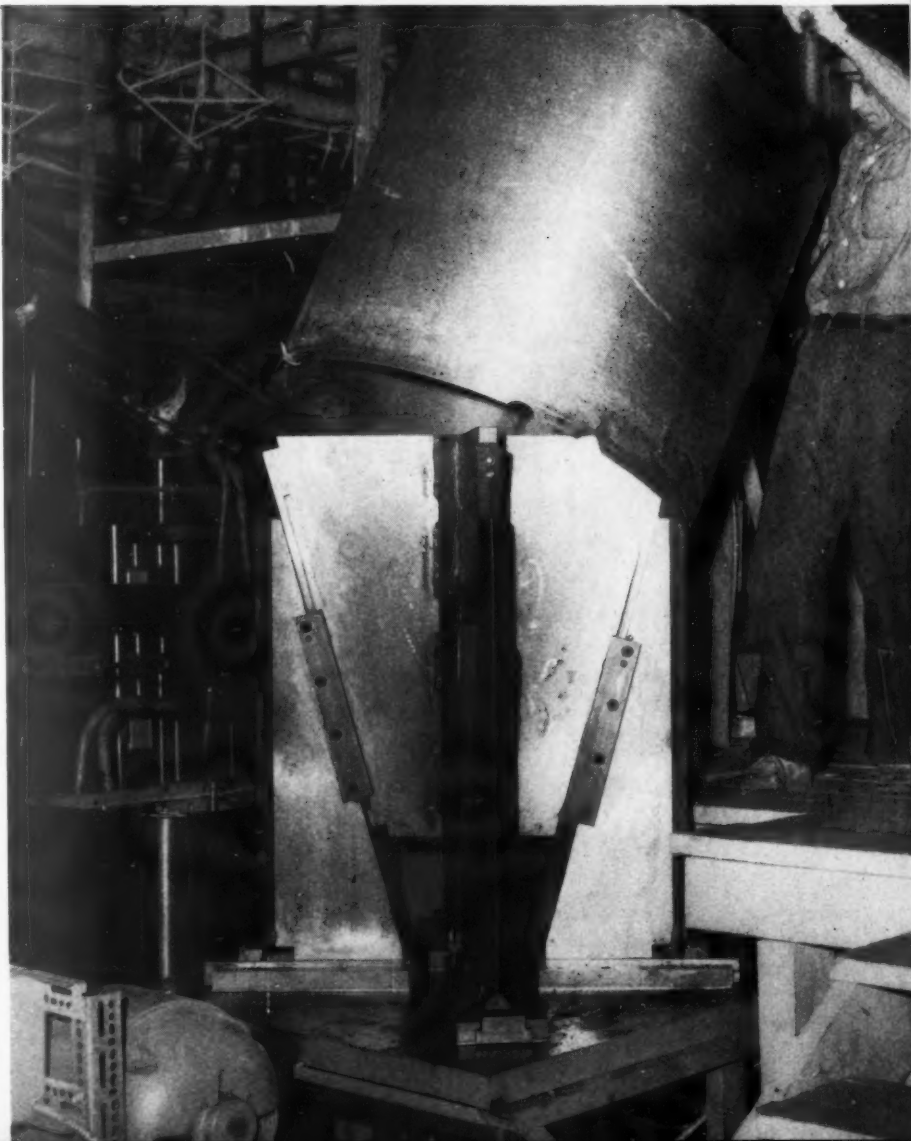
When placed in the "expander," the

cylindrical piece seats against three sectors of the cylindrical face of the central vertical mandrel of the machine, there being longitudinal slots into which the debossed ribs fit. In spaces between the three sectors, there are unpierced areas of the work piece that are to be formed inwardly by plungers or dies having V-shaped sections. These produce some stretching action when these dies are cammed into V-shaped recesses of the mandrel by wedges that are moved upward by hydraulic action.

This forming produces flat radial faces that prevent articles to be washed in the drum from slipping backward, and causes the articles to be agitated properly during washing and drying periods. While the wedges are seated in the recesses, separately-actuated small dies at the top are rocked in hydraulically to produce flanges at the top of the Vees.

to Page HL-20→

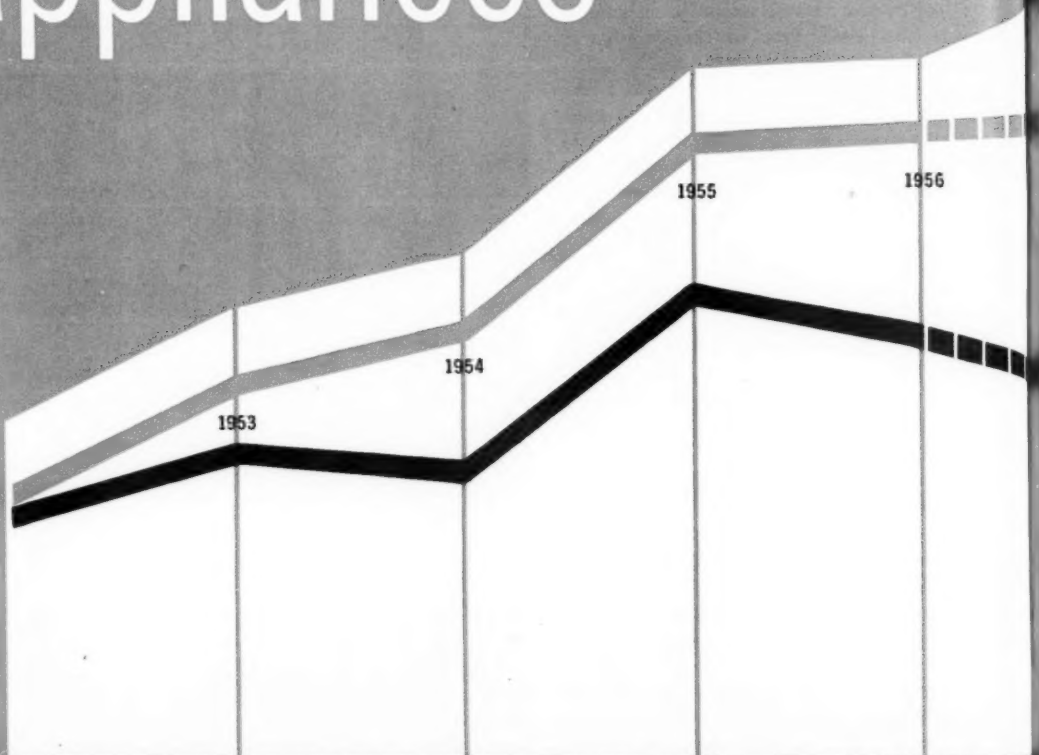
Placing a cylindrical shell on a "homemade" hydraulic forming machine after a blank has had its two ends brought together and spotwelded. Expanding shoes convert the shell into one having four "radiused" corners.



Big things *are happening in* porcelain enamel on appliances

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WASHERS

Question: "Which of these types of finish do you consider best for the **outside** of Clothes Washers?"

Answers: 64.8% voted for Porcelain enamel, 28.3% for the second-choice finish, with 3.7% expressing no opinion.

Question: "Which of these types of finish do you consider best for the **inside** of Clothes Washers?"

Answers: 77.3% voted for Porcelain enamel, 13.5% for the second-choice material, with 3.4% expressing no opinion.

DRYERS

Question: "Which of these types of finish do you consider best for the **outside** of Clothes Dryers?"

Answers: 56.7% voted for Porcelain enamel, 35.1% for the second most popular finish, with 4.1% expressing no opinion.

Question: "Which of these types of finish do you think best for the **inside** of Clothes Dryers?"

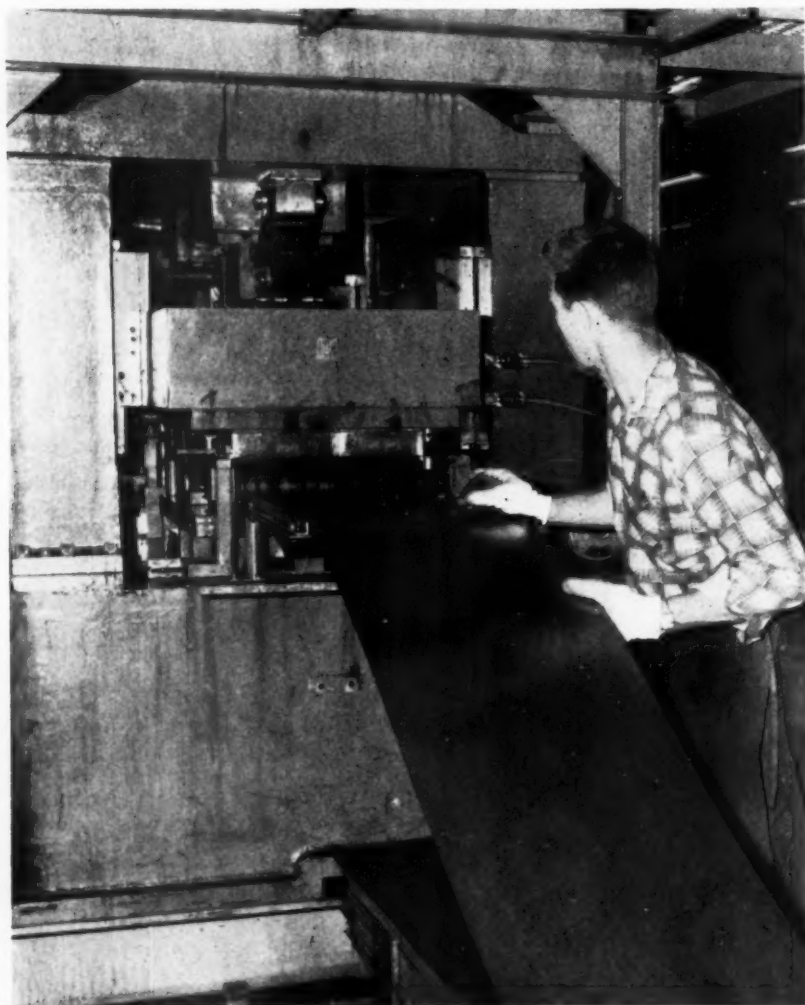
Answers: 60.3% voted for Porcelain enamel, 20.8% for the second-choice material, with 5.0% expressing no opinion.

Above figures are from independent surveys made among 6,000 representative appliance dealers. Table below shows how dealers voted on various materials and finishes. Would you like to see a complete report on these surveys? If so, just write us!

HOW DEALERS VOTED ON PRINCIPAL ADVANTAGES OF MATERIALS AND FINISHES					
	Material "A"	Material "B"	Finish "C"	Finish "D"	Porcelain Enamel
Total Respondents—1,663					
Appearance from Sales Viewpoint	83	348	130	436	1,096
Sanitation and Ease of Cleaning	81	487	101	241	1,295
Resistance to Wear	136	737	71	112	973
Resistance to Rust and Corrosion	384	763	79	108	972
Resistance to Soaps and Alkalies	77	549	60	83	1,182
Resistance to Heat	159	572	59	98	907
Permanence of Finish	151	800	62	141	1,091
Total Number of Mentions	1,071	4,156	562	1,219	7,516
Number of Respondents Responsible for Mentions	507	1,040	245	570	1,489



Feeding a long steel strip into a long-bed press that pierces a large drain hole and forms a bell around the hole. Later, this piece becomes the narrow sides and bottom of the tub.



HL-20



Operations in this machine approximate those to be done later in a tangent bender which includes a seam welder to join ends after forming. Placing a pre-formed housing in the expander (left) which is temporarily installed with its floor plate level with an elevated platform. Later, the whole expander will be below floor level. Expanded cabinet being elevated (above) after the expanding operation that includes stretching to final shape.

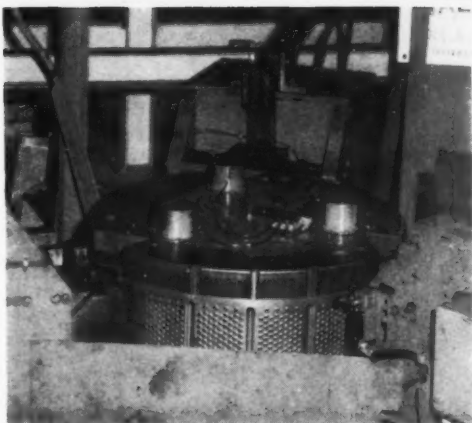
Thereafter, all dies are retracted and the formed piece is elevated to the position for removal.

Subsequently, a back plate and front ring are tack welded to the drum, after which these components are firmly joined to the drum by a series of welds around circles to complete the drum assembly.

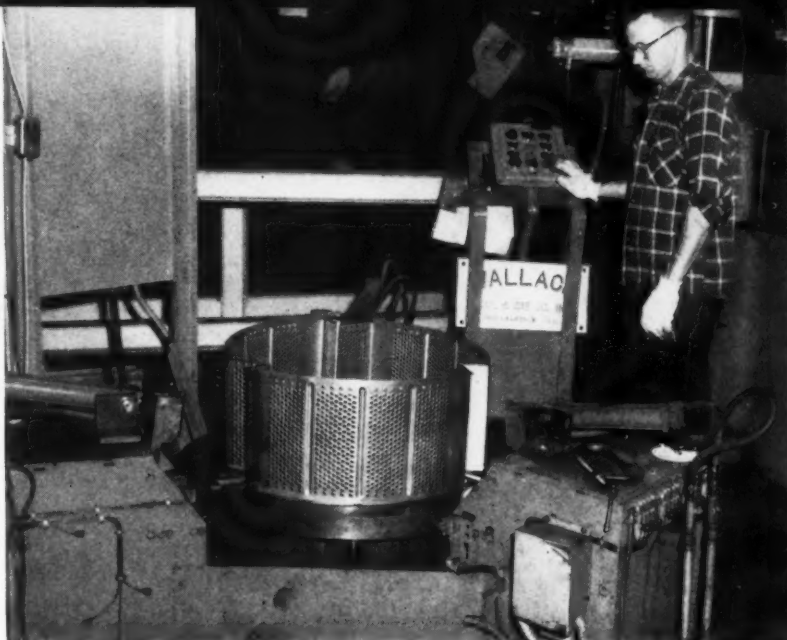
During the washing period of the machine here considered, the contents of the drum are not submerged or dipped in water in a tub, as in other washer-dryer machines, but the water is sprayed into the interior of the drum by a recirculating pump, passing through drum holes into a U-shaped tub in which the water level is always well below the drum. Front and rear sides of the tub are flat, except for shallow flanges and embossing, but special facilities are required to prepare the blank that forms the two narrow sides of the tank and continues in one piece around the bottom, which is not of symmetrical shape.

Blanks for this tub component are of 19-20 gage cold rolled sheet 18 in. wide and 92 in. long. The blank is fed into a special long bed press between side guides by rolls, being located end wise against a stop. Upon striking this stop, the press trips automatically. This press pierces the large drain hole and forms a bell around this hole. When the press opens, the stop retracts but rises again, after the strip feeds out, in time to locate the next strip.

Power rolls feed the strip out and into another special press operated hydraulically and equipped with a die to



V-shaped indentations in the washer-dryer drum (above) are produced by inward motion of three male forming members in this hydraulic machine. Small cylinders on top actuate three small dies that produce end flanges at the top of the Vee recesses. Perforated drum as it appears (right) after the recesses and small flanges have been formed at the unperforated areas, and prior to removal. Some stretching occurs during the forming.



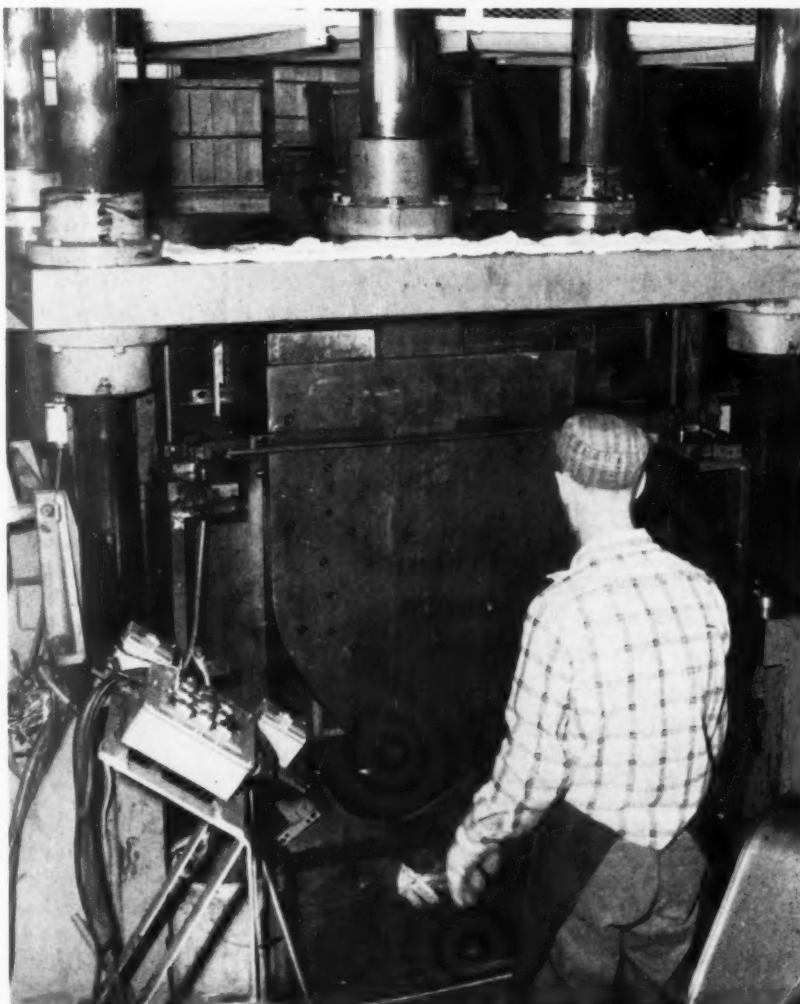
form the strip after it is located by hand. This press has a side action that moves the two halves of the lower die together just before the punch seats. Side plates on the punch strike the two edges of the blank just before the stroke ends and, as they overlap the sides of the die, these plates wipe a narrow flange against the two side faces of the die.

Subsequently, the two narrow flanges are seam welded to the side components of the tub and, of course, the welds insure watertight joints. When the forming punch retracts, springs move the two sections of the die apart, making it possible to remove the stamping. Blanking and forming presses are operated in proper sequence, of course, as the forming press must be open before the blank can be ejected from the first press. Production is at the rate of about three pieces a minute.

Before seam welding the pierced and embossed side plates to the two flanges of the U-shaped tub component, these three large stampings are located in a fixture and are tack spot welded to insure correct location. In the seam welder, there are two pairs of welding wheels designed to produce the welds of the two flanges at the same time.

Straight portions of these welds offer no special problem, but the wheels must be made to follow the curved tank contour. A special pivoting arrangement, combined with a special rack and escapement mechanism, are applied to insure that the tub will move in the correct path for further welding operations.

Strips pierced in the press are fed out through power rolls into this special hydraulic press whose die gives the piece U-shaped form and, at the end of the stroke, forms narrow side flanges for welding to the wide sides of the tub.





THE SERVICE PROBLEM

IT'S A PARADOX

• • •

a guest EDITORIAL FEATURE

by Margaret Davidson

housewives of America are delighted with modern laundry servants that give new freedom from relentless work—new time for living . . . but there is a growing chorus of complaints as their helpful appliances need more and more service.

MANY homemakers have never been able to understand why the laundry machines that make the biggest dent in the budget are the very ones that cause them the most anguish. Typical are the washing machines that “conk out” when there is a surge of company ahead and the laundry hampers are bulging. It used to be when a more expensive model was picked that meant buying quality—interpreted to mean longer life.

But with laundry devices, washers in particular, the equation goes something like this: higher price buys more convenience features—automatic, of course; more built-in controls mean more that can go wrong. And there we have it; the most costly machines present the greatest service problems—much to the consternation of the customers.

The paradox is more complex—for, of all the wonderful devices at their command today, homemakers are as gratified by the mechanized work-saving laundry as by anything else they have—when it functions, of course. Perhaps it's because they appreciate the advantages so much,

and miss them so frightfully when the appliances aren't serving well, that service for laundry products looms in such proportions.

They have told us their troubles

Our readers in growing numbers have told us of their troubles—often in desperation—when the first efforts at dealing with the situation brought no satisfaction. Frankly, of all the service problems we hear about, automatic washers are at the top of the list. Listen to what a few of these homemakers have to say:

“My washer died as dead as a dodo. The service man came, said it needed a new timer, and charged us eight dollars. That was a month ago—and now we are almost buried in dirty clothes, but no new timer. No answer to my phone calls, either.”

— — —
“A load of clothes was started one night (I always wash at night). The next morning when I came down to the kitchen, the floor was flooded. The man who came to look at the machine said he couldn't find anything wrong. Now I have to stand over the machine all the time and dare not wash at night any more.”

— — —
“Five years ago, after the birth of our third child, we went out and bought an automatic washer. Within a year we had trouble and discovered the dealer who sold it had gone out of business. We had to ship the machine at our expense over a hundred miles away. When this machine was three years old we had an additional breakdown and were told by the company that makes it that it was obsolete and we were offered a thirty-five dollar trade in on a new machine without any of the “bugs”. Since we couldn't afford to put another two hundred dollars in a washer, I borrowed an old wringer washer from my husband's mother and still slave over it and hate it!”

The details differ, but the problems stack up one after another.

Part of the paradox we'll all agree is that washers, dryers, and ironers are *used*. They aren't set off in a corner to perform their duties by themselves. If they were, the chances are there would be less trouble! It's a partnership—the devices do their part at the bid and direction of the user. She often is a fault. We all know it. Whatever the cause, there is a growing number of complaints about the

IN HOME LAUNDRY APPLIANCES

performance—or rather lack of it—in the laundry field. This too is logical, for each year means more of the automatic variety of appliances are in use. Those who find effective answers to the service problem are very certain to win friends *and influence sales*. It calls for the finest kind of cooperation from the manufacturers on through to the local dealer.

Finding ways of wooing friends with superlative service will pay. Some smart manufacturers have set up fine programs aimed to keep appliances operating. To them, my hearty congratulations. For all who never under-estimate the power of women, woman-minded angles are invaluable.

Five suggestions for manufacturers

- Design appliances with customer angles in mind—those wonderful advantages that really contribute convenience. All too often sales features and use-value features become confused—and there is a difference. For example, is it possible to have desirable flexibility without many complex controls? We've all known too many women who won't bother to shift settings when they are complicated and so fail to get full value of their appliance. Honest use-value has appeal to women. And here is a suggestion for designers and engineers: consult your home economist—she will know what performance features are important.
- Make devices that can be abused! At least now and then. Every housewife plans to use her appliances properly—certainly she does—but there are times when even the most careful user will inadvertently do something wrong. She will be grateful for the devices that have some tolerance—will take a reasonable amount of minor abuse.
- Build in instructions conspicuously and permanently whenever possible. These serve as a reminder to the owner and are a great help to the casual user who may operate the machine during vacation or when there is sickness. Incidentally, the once-in-a-while user may form lasting impressions based on a chance trial of a product.
- Explain the service set-up. Perhaps consider a campaign to explain how much can be expected, what constitutes fair rates and fees, and what is the basis for the guarantee. Manufacturers and dealers admittedly have problems too, and some explanations

will help soothe irate customers. Homemakers expect mechanical products to need some attention throughout their lifetime—but they are concerned about what they have the right to expect.

- Arrange for prompt and courteous response to calls for help in *every locality* where products are sold. If the repairs cannot be made promptly, why not have loan machines available to tide homemakers through emergencies? Service representatives personalize a company to the users they contact, and the impressions they make have far reaching results when future purchases are planned.

It's a big order, and it deserves the attention of the best brains. Success will be important—in the market place where it counts so much.



EDITORIAL NOTE: Margaret Davidson is well known to those who keep up on the Home Appliance Industry, both in connection with her present position at Ladies Home Journal and earlier positions with an appliance manufacturer and a utility.

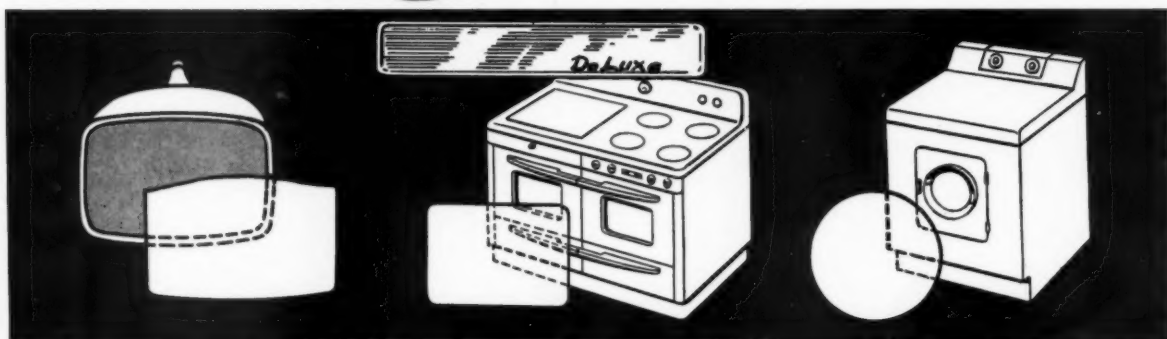
In the Journal's penthouse Workshop in New York's Rockefeller Center, there are kitchens and laundries where new appliances, devices and tried homemaking methods are developed under Miss Davidson's direction.

This author graduated from Iowa State College with a degree in Household Equipment. She was a "lone gal" in some of the engineering classes included in her schedule. Later she gained experience in the appliance field as Home Economics Director for Hotpoint and as Home Service Director of the Cleveland Electric Illuminating Co.

Margaret Davidson has "spoken her piece" in earlier issues of this publication. It is always a pleasure for our editors to present her views to our manufacturer readers.

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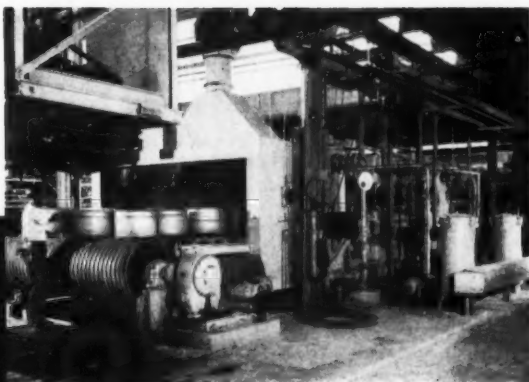
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Ingersoll manufactured tubs emerging from spray pickling operation



From Start to Finish...

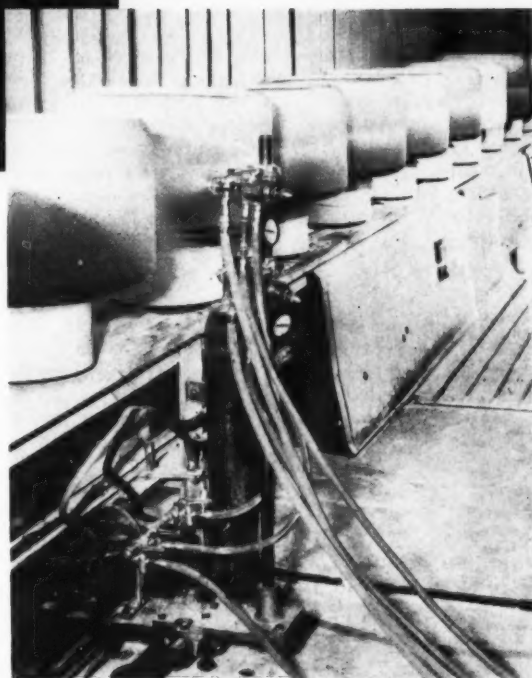
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Automatic sprayers assure uniform finish, lower costs.



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BORG-WARNER CORPORATION

Chicago 43, Illinois

A STATEMENT BY *H. B. Miller*

GENERAL MANAGER
HOME LAUNDRY DEPARTMENT
GENERAL ELECTRIC COMPANY

Ours will be the bellwether business

The technical developments which have distinguished the home laundry industry in recent years have been accompanied by great business growth. Today we represent a large part of the whole major appliance industry, and our share will grow. Ours will be the bellwether business.

Our growth will come on the soundest of bases: contribution to the customer. We will do much more than merely "wash the dirty linen." As technical progress continues, both in our own devices and in the textile field, we will reach the day when we can truly condition the whole family wardrobe as well as all the various fabrics used in the home.

Along with our contributions will come consumer appreciation, not for what we have done but for the benefits to be enjoyed . . . the benefits of using combination fabric conditioning devices at those points in the home where they are most needed. At that time, the day of taking soiled clothing to the washing machine and dryer will be long past. Instead, the machines will have been brought to the laundry.

A STATEMENT BY *John W. Craig*

VICE-PRESIDENT, GENERAL MANAGER
HOME APPLIANCE DIVISION
WESTINGHOUSE ELECTRIC CORPORATION

Manufacturers must seize their opportunities

I believe the home laundry appliance industry offers appliance manufacturers one of their greatest opportunities for growth. The home laundry industry will mushroom on the sales charts, that's certain. But it won't be as easy as 'shooting fish in a barrel.'

Manufacturers must seize their opportunities. They must face up to the new approaches in the home laundry field—the combination washer-dryer; separate units combined in space-saving installations; the increasing demand for 'built-in' laundry equipment; the ever-increasing changes in the fabrics that make up the family wardrobe, which must be recognized in the design of our product.

But there also must be an intangible growth—expansion of the industry's prestige and importance in the mind of the homemaker. We have made progress in this direction by taking the laundry equipment out of the basement and placing it 'upstairs' where it can be seen and admired; by the introduction of color; by aesthetic advances in styling; by promoting automatic laundry equipment as a necessity rather than as a luxury.

If the home laundry appliance industry is to realize its full potential, we must make sure our technological progress is matched by progress in prestige. This, we feel confident, will take place.

HL-26

MPM
EXCLUSIVE
FEATURE

Future of the Home Laundry



HAMILTON



JEFFREY



ERICKSEN



CRAIG

A STATEMENT BY *Walter Jeffrey*

VICE-PRESIDENT AND GENERAL MANAGER
KELVINATOR DIVISION

Salesmanship will enrich the 1960 market

Manufacturing ingenuity and genuine salesmanship will put the bright future of the home laundry appliance industry within the reach of everyone in the industry.

So far, in the early 1958 model introductions, a definite trend has been shown toward more engineering improvements, more value differences, in middle and high-end models. Appliance manufacturers have returned to more realistic scheduling of production facilities which have the potential to flood the present market. This return to sound management of production is vital to a solid, successful entry into the 1960's where population increases, new household formations, and increased buying power accompanying the rising standard of living, will provide tremendous new demands for home laundry equipment, and all home appliances.

Genuine salesmanship — the desire and ability to sell quality, performance and features — will enrich the 1960 market, which promises to be the most important decade in the history of the major appliance industry.

SEPTEMBER • 1957 MPM

Laundry Appliance Industry



MILLER



SAYRE



GRAY
See Page HL-38



ELY
See Page HL-38

A STATEMENT BY *J. P. Sayre*
PRESIDENT
NORGE DIVISION

Problem—control of productive capacity

Present low saturation of automatic washers (35%), dryers (13%), and combinations (1%) — a growing replacement market for automatic equipment — a rising standard of living — a rapid increase in the number of family formations after 1960 — will generate an expanding market for home laundry products. This year our industry should ship about 5,200,000 units. We expect annual sales of 6,500,000 units by 1960, 7,500,000 by 1965, and more than 8,000,000 units by 1970.

Annual sales of combinations should reach 675,000 units by 1960, and double this amount by 1965.

Automatic washer and dryer sales should peak about 1970 and decline thereafter as the combination moves to the fore.

The industry's biggest problem will continue to be control of its productive capacity. Today we have the ability to manufacture more than twice as many appliances as can be sold, and are producing about 10% more than can be sold profitably.

A STATEMENT BY *E. P. Hamilton*

PRESIDENT
HAMILTON MANUFACTURING COMPANY

The choice is in our own hands

The American homemaker will make the future of this industry a bright one — just as bright as we'll let it be. Three factors promise to insure our future: a rapidly growing population; exceptionally low saturations compared to other appliances; dramatic increases in the proportion of launderable apparel and home furnishings. The rest is in our own hands. If we are wise enough to sell these marvelous customers the top-quality equipment they want and need, the future for all segments of the industry — dealer, distributor and manufacturer — could hardly be better. If we demoralize the market by sharp dealing, shoddy merchandise and volume-at-any-price selling, we can destroy one of the greatest opportunities in modern business history. The choice, as I see it, is in our own hands.

A STATEMENT BY *Parker H. Ericksen*

VICE-PRESIDENT
EASY LAUNDRY APPLIANCES, DIVISION OF
THE MURRAY CORPORATION OF AMERICA

One of the best market potentials

I am personally convinced that home laundry equipment has one of the best market potentials of all major appliances. So far it has low saturation as compared with other appliances and consumer durable goods, and it has three new products which have only been developed since World War II—the automatic washer, the automatic clothes dryer and the combination washer dryer.

Think back to a scant ten years ago. Only 58,000 dryers were sold. Last year 1,640,000 were sold! And look at total sales during 1956—approximately \$1,500,000,000 worth of laundry equipment at retail price sold during 1956—as compared with \$625,000,000 retail in 1947. Yes, I feel that with population on the rise, with continued widespread employment, with earnings broadly spread, home laundry is here to stay and to rise and shine.

One important factor to note is that more and more people are servantless. This is the "do-it-yourself" era. And women, (and many men and many teenagers) are now performing more of the services formerly hired out. So that more than ever, home laundry appliances are considered basic housekeeping equipment today.

I still believe that the wave of the future is in dryers and combinations. As the housewife who already owns an automatic washer is used to its performance, she becomes an immediate market target for a dryer to accompany it. And often as her washer becomes outmoded, she is a target for the fully automated washer-dryer, the two-in-one unit.

I feel it is up to the industry to keep the market competitive, providing the best possible quality products—and that the demand for and popularity of these products will consistently increase.



PULLEY DESIGNING is a **NAGEL-CHASE** **SPECIALTY**

What can be so specialized about pulley designs? We feel the welded, all-pressed-steel, patented, V-Belt Pulley, illustrated, perfectly demonstrates the value of Nagel-Chase's specialized pulley designing. It represents reduced unit cost, saving in weight and simultaneously provides a pulley with rigidity and long service life. This is only one of innumerable special pulley designs which have been developed by Nagel-Chase design engineers to meet exacting requirements.

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*Write today for catalog and prices.
Send sketch of part or description of application.*

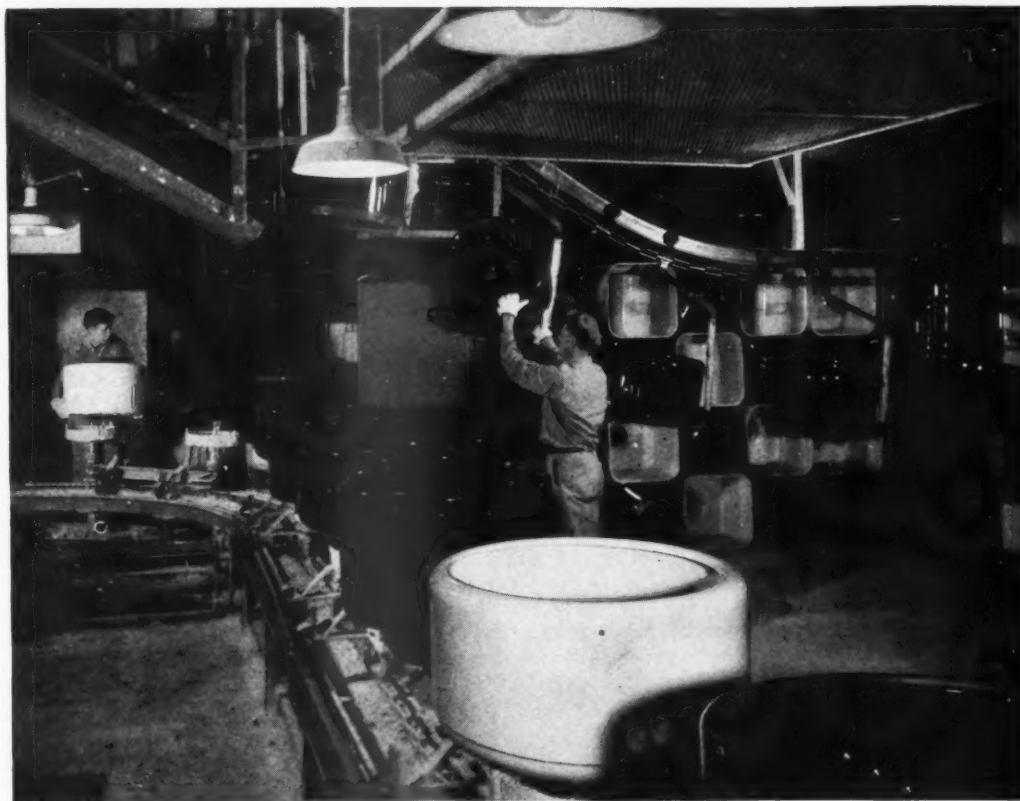


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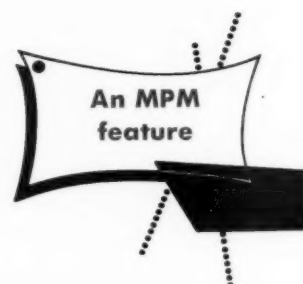




Among the new features incorporated in Speed Queen's Golden Anniversary Model A22 automatic washer is an automatic rinse conditioner in which powder or liquid conditioners are added to the rinse water at the proper time.

The 1958 home laundry

Manufacturers have gone all out to bring the 1958 word in style and utility in the 1958 Here are examples of the products



Norge's 1958 home laundry line features a two-speed spin and wash on the automatic washer and super fast drying for regular fabrics on the automatic dryer. Wash and wear clothes are dried in 35 minutes with little or no ironing needed.

Vote for Home Laundry Queen

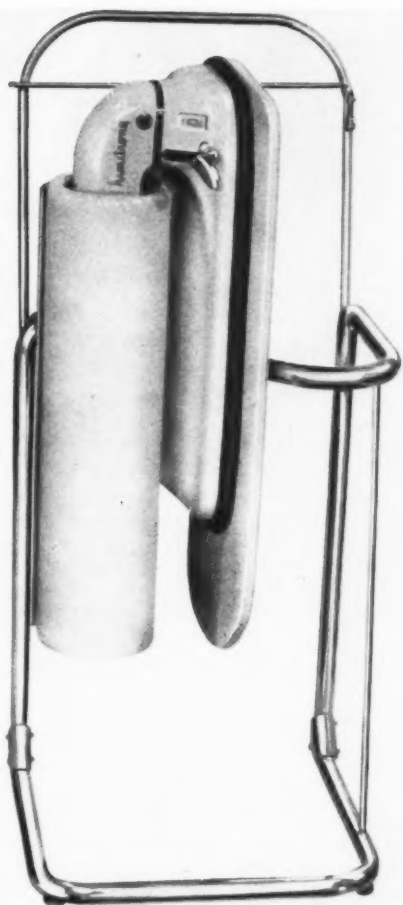
Among the photos on this and following pages are entries for MPM's annual Home Laundry Queen contest—choose the young home maker you think should be Queen and send your vote in to Dana Chase Publications, Elmhurst National Bank Building, York Street at Park Avenue, Elmhurst, Ill.

(Use manufacturer's name for identification)



laundry appliances

to bring to Mrs. Homemaker the last
the 1958 Home Laundry Appliances.
the products being offered.



The new Armstrong Ironer Stand serves a dual purpose in making ironing a faster and more comfortable task. In addition to being an ideal working table for the ironer, the stand provides a ready means of storage when the ironer is not in use.



One of the outstanding features of the Hamilton '58 models is front-servicing. The entire control panel tilts forward for easy accessibility to wiring and terminals.

General Electric's new line of home laundry models have several new features. The washer has five separate wash selection buttons that are keyed to the different classes of fabrics. The clothes dryer can be operated on either 110 or 220 volts. It has an automatic sprinkler that dampens the clothes for ironing. High speed drying is another feature of the dryer without danger to the fabrics because the air is warmed in another chamber.





 **Whirlpool**



SOMETHING NEW HAS BEEN ADDED...



Korolite

enamel has been added to RCA-WHIRLPOOL washers and dryers — making them as outstanding on the dealer's floor as the baby with the new red ribbon!

But Whirlpool-Seeger's reasons are soundly practical...

Korolite enamel meets the most exacting mass production requirements • batch-to-batch uniformity • ease and economy of application • uniform color and high gloss retention • positive resistance to detergents, chips, cracks, scratches, stains • cleans easily • resists wear.

And United gives fast "demand" delivery from 5 strategically located plants. Let's get acquainted. Ask for one of our paint-problem experts to call at your convenience, and without obligation. We'd like to meet you—perhaps to serve you.



FIVE STRATEGICALLY LOCATED PLANTS

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*Benjamin Franklin Paint and Varnish Co.
Philadelphia, Pa.*

SOUTHEAST

*Carolina Paint & Varnish Co.
Greensboro, N. C.*

CENTRAL

Illinois Paint Works Chicago, Ill.

WEST

Pacific Paint & Varnish Co. Berkeley, Calif.

SOUTHWEST

De Soto Paint & Varnish Co. Garland, Texas

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1000 SIZE

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CREATIVELY ENGINEERED TO SERVE THE SMALLEST TO THE LARGEST APPLICATION

IMPLEMENT PRODUCT IDEAS . . . new products or product modifications can utilize the advantage of electro-mechanical control . . . remote or proximate . . . with DORMEYER solenoids engineered to specific design. DORMEYER experience can solve your solenoid problem.

LENGTHEN PRODUCT LIFE . . . The quality parts that go into a DORMEYER solenoid and their expert fabrication account for its rugged dependability. In turn, this long-lasting reliability increases product service life.

IMPROVE PRODUCT PERFORMANCE . . . Double shading coils in DORMEYER solenoids deliver high seating pull without hammer or excessive A-C hum and chatter. And phase-timing the plunger's stroke for maximum work eliminates any power drop-off.

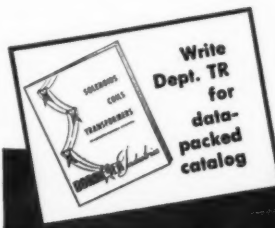
REDUCE PRODUCTION PROBLEMS . . . Made to your specifications, DORMEYER solenoids feature close-tolerance component parts that eliminate many problems in product assembly. And their ruggedness withstands handling.

Dormeyer Solenoids are made for all commercial voltages and frequencies. Standard sizes from $1\frac{1}{4}'' \times 1\frac{1}{4}''$ to $3'' \times 3''$. . . stroke lengths fractional to $2''$. . . pull and/or push capacities to 35 lbs. Larger sizes made to specifications.

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TWO MODERN PLANTS IN CHICAGO AND KENTLAND, INDIANA

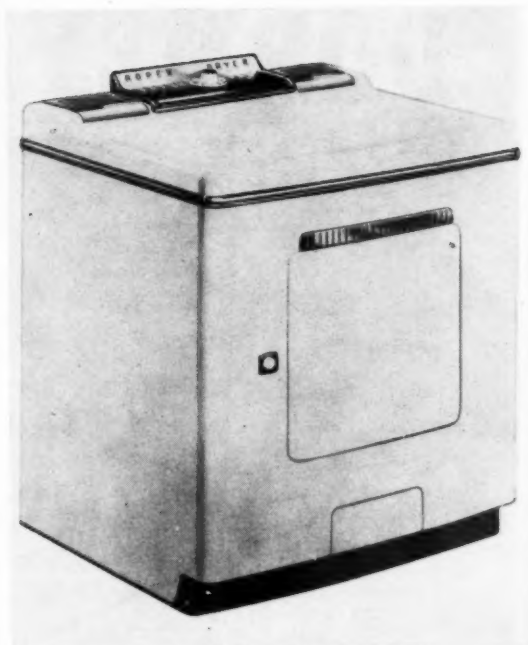
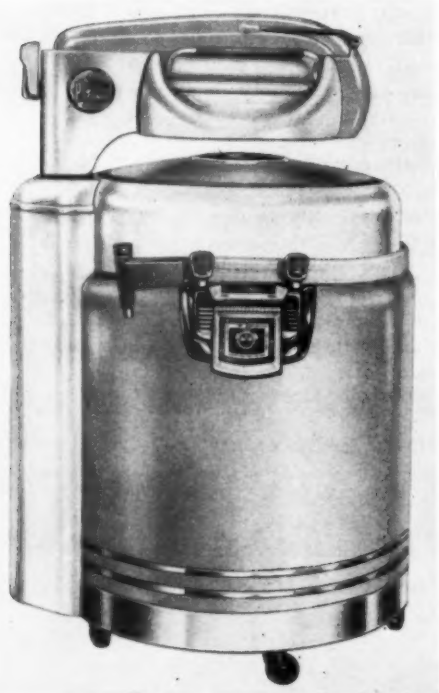
DORMEYER INDUSTRIES
3436 MILWAUKEE AVENUE • CHICAGO 41, ILLINOIS





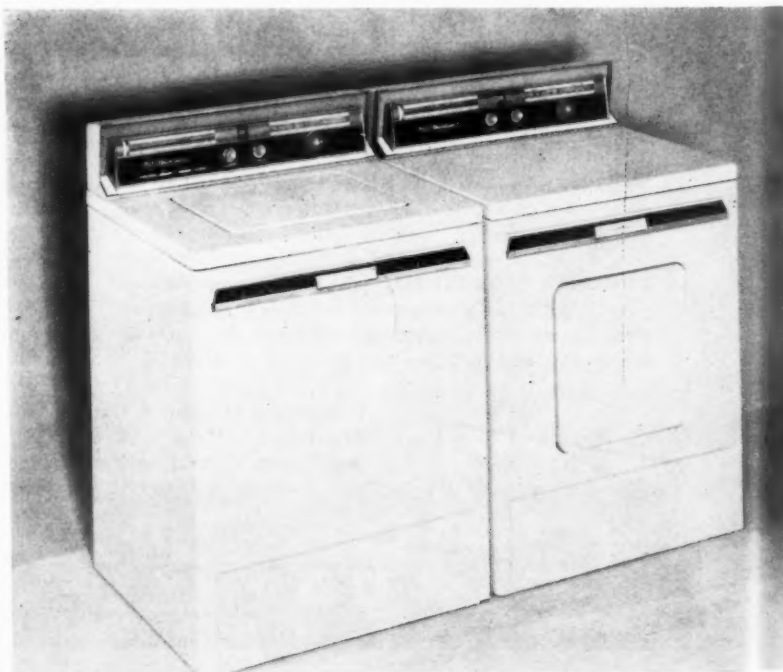
The 1958 Frigidaire dryer at right has "no heat" cycle for special laundry items. The dryer requires no plumbing or venting. The automatic washer will wash, rinse and spin-dry clothes in just 12 minutes. The washer and dryer come in turquoise, yellow, pink, charcoal gray and white.

Woman's Friend washers for 1958 come arrayed in several brilliant colors to harmonize with any surroundings. The machine has a two-way fill and drain hose with plenty of length to reach the drain.



The Roper "Dry-Aire" is operated by gas heat and normal 110 volt house current therefore needing no costly installation. The design of the dryer is inspired by modern fashions and decorating schemes.

The 1958 Whirlpool line of washers and dryers features a color key to time, temperature and cycle selection to eliminate guesswork for ideal washing and drying conditions for various fabrics. In the top-of-the-line Imperial Mark XII model automatic washer, shown here, complete instructions for washing any given fabric are revealed by turning a dial on the left of the control panel.



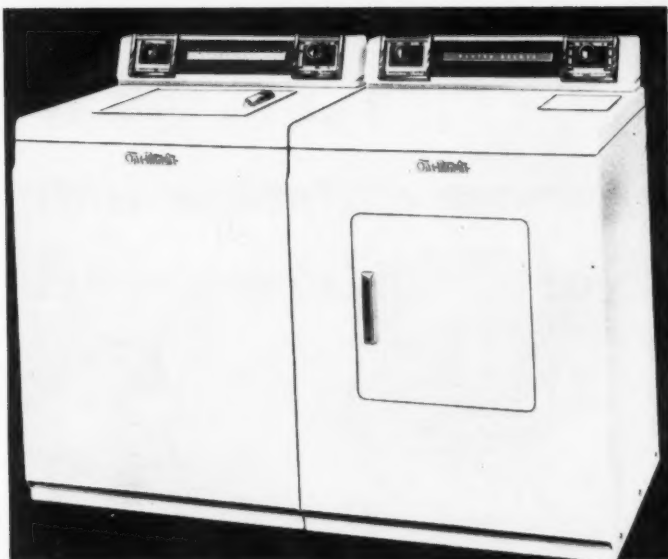
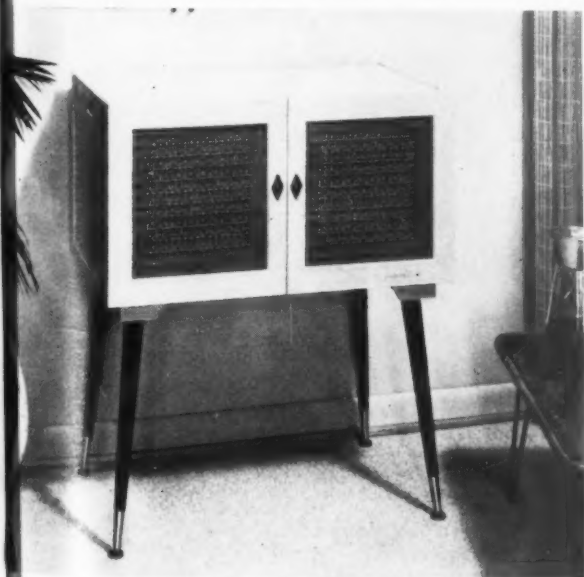


Fully flexible control of each cycle where any operation can be started or stopped, lengthened, shortened, repeated or skipped is one of the outstanding features of the 1958 Blackstone Royalist automatic washers. Stainless steel tub and top are other points of note.

Vote for Home Laundry Queen

(see page HL-30)


Ironrite's 1958 automatic ironer is a beautiful addition to the furniture of any home. The new line of ironers is being produced in cherry fruitwood and limed oak as shown here.

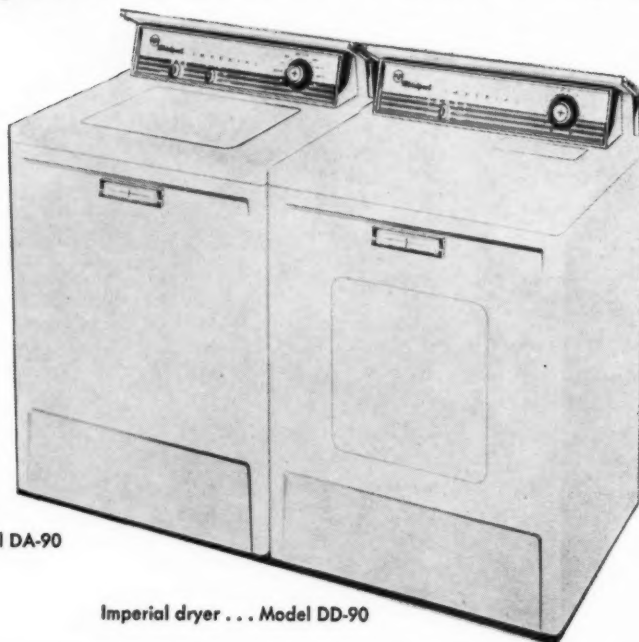


The entire transmission of the 1958 One Minute washer is guaranteed for five years against defects. It also features automatic-type fluid drive that automatically decelerates if clothes become out of balance until the load corrects itself. The dryer has an unusually large nylon lint trap that can dry up to 15 to 20 loads before emptying.

1958 Hotpoint combination washer-dryer is completely automatic in operation. The wash section has a two-cycle timer and a pressure fill which allows pre-selection of wash time, hot or warm wash or warm or cold rinse water. The right hand dial and pushbutton bank controls drying times and cycles, whether delicate or normal. See the engineering feature on the Hotpoint washer in this issue.



● it takes a lot of careful planning
to maintain uninterrupted production
of  Whirlpool washers and dryers



Imperial washer . . . Model DA-90

Imperial dryer . . . Model DD-90

VITAL LINKS IN THE WHIRLPOOL-SEEGER PRODUCTION STORY ARE
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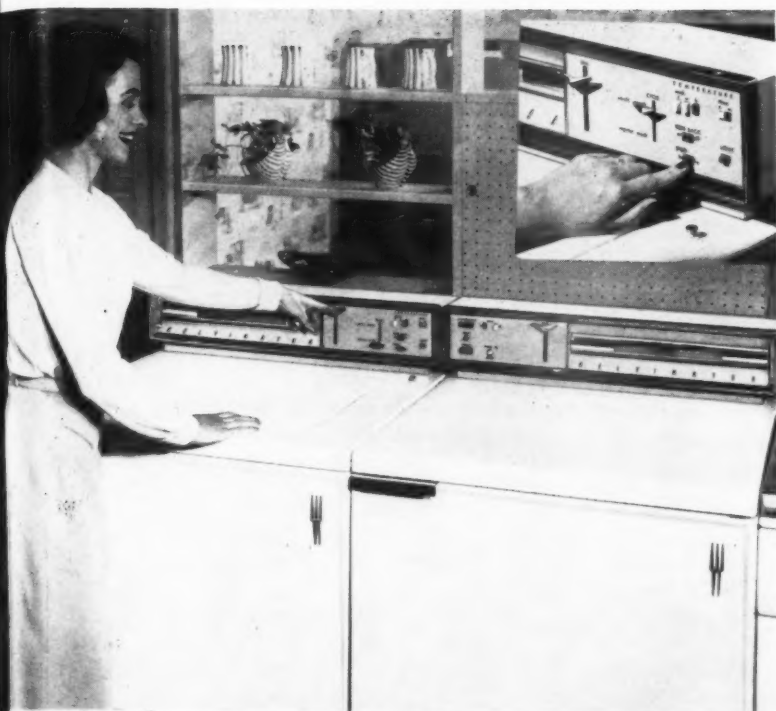
Keeping production lines operating smoothly and efficiently is an exacting job that requires careful, intelligent planning and purchasing. We're pleased that Whirlpool-Seeger Corp., like other leading manufacturers of home appliances, uses Universal Screws in their assembly operations . . . pleased that Universal quality, dependability, and low costs have become an accepted fact in the home appliance field. If you have not yet experienced the plus factors that buying screws from Universal provides there's no better time than now to take advantage of them . . . to put Universal know-how and service to work for you.



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SALES OFFICES IN DETROIT, CLEVELAND, MILWAUKEE



Kelvinator's 1958 line of home laundry appliances may be installed flush to wall thereby lending it a built-in appearance. The two-cycle washer has both high and low speeds for regular or for lightly-soiled articles. The matching pair are of all-porcelain construction and available in white and three colors.

Vote for Home Laundry Queen

(see page HL-30)

The Caloric dryer for 1958 features one-knob control and employs a new principle in clothes drying with low temperature and high volume of air. A nylon filter efficiently removes lint and is removable.



The Douglas automatic dryer features tastefully applied chrome decoration along with a design that permits flush to wall installation.



The Maytag no-vent electric dryer has a distinctive control panel and back panel overhang that permits installation flush-to-wall or flush to cabinet. Heat is sealed in and kept from the work area by aluminum foil plus a heavy blanket of fibreglass surrounding the drying chamber. ↑

The long run still looks good

(Continued from Page HL-9)

some in both durable and non-durable manufacturing. Coupled with this, average weekly earnings have leveled.

3. Coupled with both of these, the cost of living (B. L. S. Consumer Price Index) turned up at the end of the first quarter of 1956 and has continued to rise. The leveled earnings won't buy as much right now as they would in 1956. This affects negatively the "ability to pay" element of effective demand. This fact was available in early 1956.

4. Finally, total inventories rose more rapidly all during 1956 than did sales, according to the VSD of commerce and the Federal Reserve Board. Sales went from 53.1 billion seasonally-adjusted annual rate in April, 1956, to 55.7 billion in June, 1957, but inventories went from 84.5 to 89.8. Manufacturers of appliances can draw their own parallels to these figures in weeks of inventory in stock then and now. How much of 1956's peak was going to building stocks? How much on to the consumer?

5. There are many other items, too, that have a bearing—appliances appeared to out-compete autos for the

consumers durable goods dollar in 1956, but not in 1957.

6. Consumer installment buying. Installment borrowing continued its rise, reaching the all-time high of 31,901,000 debt outstanding. But consumer goods credit, other than autos, turned down from December to January, apparently indicating that buyers had decided to start paying off their commitments. The down trend continued until May, when a small net gain was reflected again. If the gains continue, we have, perhaps, a favorable signal for an upturn.

The favorable signals

Had we been wise enough we might have called the down turn. Are we wise enough now to call an upturn in the last half of 1957. What favorable signals are there? At last four are worth noting.

1. There are widespread reports, from men who have been contacting dealers and distributors "in the field," of good retail sales very recently. This, coupled with other sales movements, would seem to indicate that the retail end for the supply pipeline is emptying and getting

ready for new models.

2. New models, themselves, have been more and more introduced in the latter half of the year. This is a seasonal factor which is changing. Factory sales of home laundry appliances have been strongest during the second half of recent years. The appearance of new models will continue to contribute to this—a point of strength for the last half of 1957!

3. AHLMA's Dryer promotion program for consumer education is directed primarily toward filling in the summer seasonal lows but, of course, effectively selling a whole modern home laundry.

4. The long-term upward trend is based on such fundamentals as population increases, family formation, widespread employment, and high earnings, and all the others which make this nation great and economically strong. If you forecast "the trend," this factor alone will pull your forecasts up—and be right more often than wrong.

The real challenge to the appliance industry—and to the makers of washers, dryers, combination washer-dryers, and ironers especially—is still to sell appliances as skillfully as they make them.

Future of the Home Laundry Appliance Industry → from Page HL-27

A STATEMENT BY *Elisha Gray II*

PRESIDENT
WHIRLPOOL CORPORATION
ST. JOSEPH, MICHIGAN

The brightest star in the firmament

(statement received at press time)

Many a manufacturer has already come a cropper by misjudging the first six months of 1957 in the major appliance industry, so I am somewhat chary of forecasting anything pertaining to appliances, for any length of time. On sober reflection, however, I can see in the future of every segment of the appliance industry continuous progress and improved profits that can be reasonably assured by careful and realistic planning.

In my opinion the future of the home laundry appliance industry is an exceptionally bright one. The brightest star in the firmament of the laundry industry is the combination washer-dryer. We believe it will follow the sales trail that was first blazed by the automatic washer, and in the wake of the automatic dryer. Consumer experience with the individual washer and dryer will do much to accelerate acceptance of the still comparatively new combination. I also believe that the automatic ironer market offers an inviting challenge; one that I feel will be met, possibly within the next five years.

Best of all, perhaps in this atomic age of dramatic technological change, I can see nothing but advancement for the home laundry appliance industry; and certainly nothing to replace it.

A STATEMENT BY *Claire G. Ely*

MARKETING VICE-PRESIDENT-ELECT
THE MAYTAG COMPANY

Four factors affecting the appliance market

Appliance dealers will not become victims of any economic climate, but will be creating an economic climate in which they can operate profitably if they are willing to recognize and do something about four factors affecting the appliance market:

First, the ability to . . . keep in front of a rapidly-changing market, with all of its fluctuations caused by the growth and development of new products and new developments in old products.

Second, the ability to keep abreast of rapidly-increasing technical changes so that each of us and our sales organization can truly be 'experts' and be able to provide satisfactory solutions to the questions that exist in the consumer's mind.

Third, to realize that we are in a buyers' market and to do something about it by training, developing and using a strong, aggressive sales force rather than placing our entire reliance on gimmicks which can't do the whole job but which should merely serve as tools for the aggressive salesman to use.

And, fourth, to honestly realize that a good salesman has the power to change conditions—has the power to do something about it. We never truly make progress when we sit back and are content with things the way they are.

There is no magic gimmick, including price, to replace creative selling.

*Why leading
clothes dryer
producers choose the
Ranco C11 Control*

Both its excellent performance and its easy adaptability to specialized equipment designs have earned the Ranco C11 Clothes Dryer Control exceptional popularity in the industry.

The C11 is a *standard* Ranco Control. Yet its wide versatility (demonstrated in these illustrations) accommodates your own special dryer designs to give you all the advantages of a custom control.

Please note these special features of the Ranco C11:

- Coordinates with timer motor using dial or push-button temperature cut-out control.
- Available with auxiliary switches to control additional heater circuits.
- Quick-disconnect or screw type terminals.
- Mounting bracket has multiple holes for flush or side mounting. (Special brackets available.)
- Electrical rating—listed and approved—25 amperes, 250 volts, a.c. and 125 volt-amperes, pilot duty at 125 volts, a.c.
- Bright zinc, Iridite treated exterior finish.

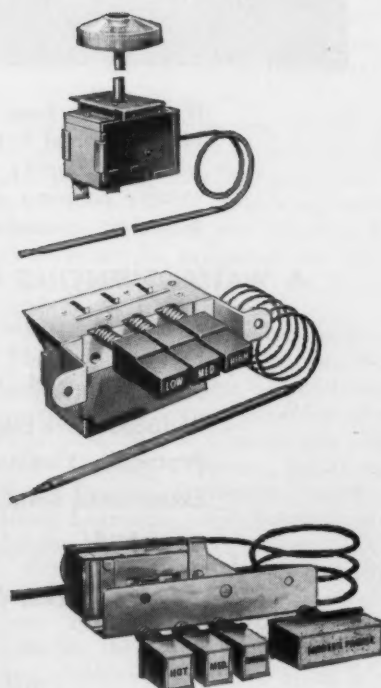
We'll be happy to show you how the versatile C11 Control adapts to your own dryer equipment. Just write Ranco Inc., Columbus 1, Ohio.

Ranco Inc.

COLUMBUS 1, OHIO



RANCO C11 CONTROL



Time to consider your...



with O. HOMMEL • **Tite-Wite**
PORCELAIN ENAMEL FRIT

If you have been having coverage troubles, O. Hommel Tite-Wite Porcelain Enamel Frit is your solution. In addition to giving your products a beautiful, quality white surface, it can be successfully used with Hommel quality coloring oxides to produce a variety of colors for all types of porcelain enameled products.

A WATER QUENCHED GRANULAR PORCELAIN ENAMEL FRIT OF MANY USES

Whatever your product, you'll find quality applications for this versatile Titanium White Cover Coat Frit that has set standards for color stability. Write or telephone for samples TODAY!

Superior Acid Resistance
Reduced Black Edging Problems
Practically Eliminates Chipping
Exceptional Bonding Strength

Available for Pastel or Strong Colors
75%-85% Reflectance
Can be Drained, Swilled or Sprayed
Better Scratch Resistance

your
"The World's Most Complete Ceramic Supplier"

THE **O. HOMMEL** COMPANY

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PITTSBURGH 30, PA.

WEST COAST • 4747 E. 49th STREET • LOS ANGELES, CALIFORNIA



The 1957 home laundry conference

the home laundry industry's national meeting for home economists and educators — its history and its purpose

by Rye Anthor • CONFERENCE PLANNING CHAIRMAN

THE subject of the eleventh annual conference of the American Home Laundry Manufacturers' Association will be "*Wash and Wear — Fact or Fantasy.*" The subject will be thoroughly explored through speeches by leading editors, educators, home economists, and manufacturers, and through panel discussions. This conference is the first attempt to consolidate all the available information on the use and care of the new "*Wash and Wear*" fabrics.

Following the established pattern for previous conferences, this year's program represents the combined efforts of home laundry appliance manufacturers, the textile industry, educators, and editors. Using this tremendous background of knowledge, AHLMA sponsors these conferences for home economics teachers, home economists, home demonstration agents, Department of Agriculture extension workers, utility home service directors, and many others.

While the information presented at the conference is necessarily basic, the rapid technological advances in textiles, laundering chemicals, and home laundry equipment readily make it apparent that the conference is virtually the only way this information can be disseminated to the consumer in a clear and expeditious manner. Furthermore, not only does the conference educate teachers, but much of the information and techniques are so new and significant that home laundry manufacturers and their affiliates in the textile, detergent, and allied industries are themselves quickly brought up to date, and these same new facts are self-generating in creating new technological advances.

600 attend-millions read

Interest in the conference is very high. Last year's conference in Chicago was attended by a capacity crowd of over 600 people. Since approximately 50 percent of the attendance is comprised of people from within a one-hundred mile radius, each year the conference is held in a different major city, selected to offer the maximum attendance opportunity for its region.

Although attendance at the conference is necessarily limited by the location's physical capacity, the consumers reached by the magazine editors, educators, demonstrators, and conference proceedings book total many millions.

The effect on the American consumer, and the advancement of her home laundry knowledge, practices, and buying habits can hardly be overestimated. Virtually no other industry makes so great an effort to provide her with the latest information on equipment, allied products, and proper use as does the home laundry industry.

The American Home Laundry Manufacturers' Association was founded 41 years ago, but it was not until 1946 that the first of the unique home laundry conferences was held. This first conference developed as a result of the introduction of automatic washers in 1945. Home economics and home equipment editors discovered there were many unknowns in the proper use and application of the new automatics.

These editors and home economists first met with the automatic washer manufacturers in order to secure first-hand information and collectively agree

as to the best methods of use and application. This, in effect, was the first Home Laundry Manufacturers' Association Conference.

The nation's capital — 1957

The eleventh National Home Laundry Conference will be held in The Mayflower Hotel, Washington, D. C., November 1-2. The program, with its "*wash and wear — fact or fantasy!*" selected theme, will be concerned with wash and wear synthetic fibers from the viewpoint of both home laundry appliance and synthetic fiber industries.

The Conference, planned around a consumer's look at laundering wash and wear in her own home, will survey modern home laundering methods and techniques in this field, and present new trends in textiles, equipment, and techniques which will be used in homes within the next few years.

Basic sections of the Conference program include Fibers and Fabrics for Home Laundry, Construction of Home Launderable Garments, Home Laundry Appliances, How to Launder and Use, Home Laundry Chemistry, Improving Home Laundry Techniques, Teaching Home Laundering, and Future Home Laundry Features.

Home Laundry and textile industry experts will join in presenting each subject; dramatically illustrating their talks for the widest possible editorial and educational use. The result is a Conference presented by a small segment of the industry that has unbelievably far-reaching effects on the consumers of tomorrow who are the home economics students of today!

CASTER SOCKETS

AND BRACKETS

... OUR SPECIALTY...



In addition to our standards let us quote on your exact specifications. Our Press Department equipment ranges from 5 ton to 300 ton capacity. Hydraulic Presses 90 to 300 ton, Mechanical Presses 5 to 245 ton. We specialize in deep draw work for Appliance and other Metal Products Manufacturers.

WASH MACHINE STAMPINGS ★ SPOT WELDED ASSEMBLIES
COMPLETE TOOL & DIE FACILITIES



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Write, phone, or wire, today!

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your stamping headquarters

for **PRECISION**

WASH MACHINE

PARTS.....

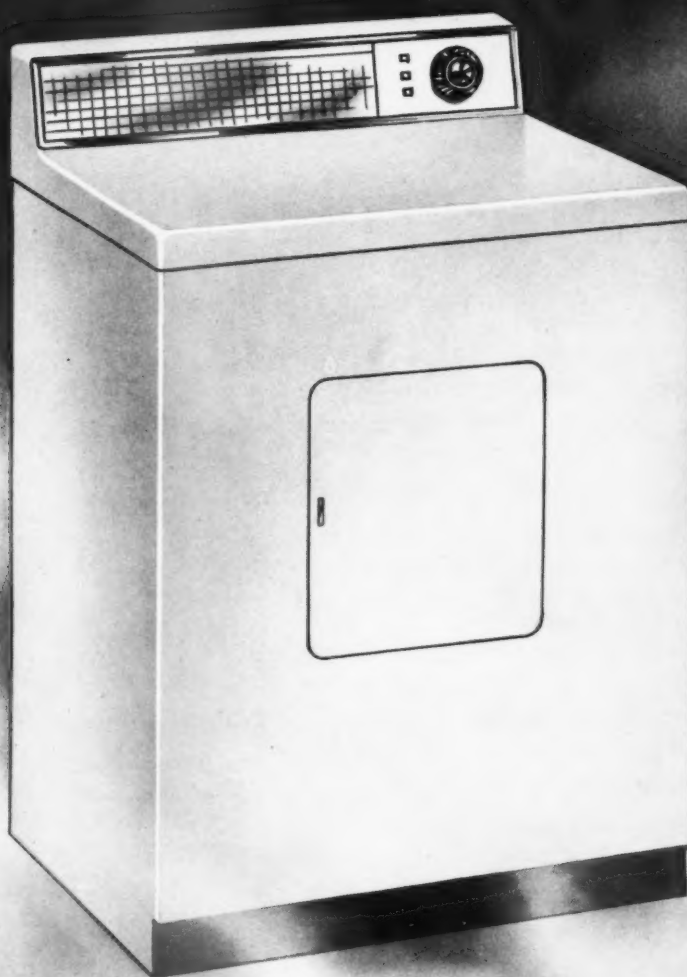


DEEP DRAWN PARTS

HERE'S ANOTHER CHICAGO VIT FIRST!

**a steam vapor and alkali
resisting ground coat**

that you can DIP



Get the facts today from your Chicago Vit sales or service engineer or write direct

Chicago Vitreous **CORPORATION**
1425 South 55th Court, Cicero 50, Illinois

For Finest Frit—Chicago Vit

NEW SORENG

3-temperature, non-thermostatic, flow-proportioning

WATER MIXING VALVES



MODEL 621 DOUBLE MIX VALVE

NEW FEATURES...NEW ECONOMY

The Model 621, double mix valve, flow-proportioning system meters hot and cold water in pre-selected ratios to obtain required temperature ranges. This system minimizes the effect of inlet pressure variations in the house water system without the added cost of a thermostatic element.

FUNCTIONAL CHARACTERISTICS

- With temperature at source of 140° and 60°, the Model 621 double mix valve delivers the following:

HOT	—140° F at 4 GPM
MEDIUM	—115° F at 6 GPM
WARM	—100° F at 4 GPM

FEATURES:

- Body molded of nylon
- Check valves located in each inlet
- Monel filters in each inlet—(Brass Optional)
- Precision engineered and manufactured to meet life requirements
- Mounting bracket and outlet plates to customer specifications
- Coils are easily replaced without disassembly of valve for odd voltage and frequency export requirements



NEW LOW-COST MODEL 622
SINGLE MIX WATER MIXING VALVE

Non-thermostatic, the Model 622 valve delivers 4 GPM of hot (140° F), cold (60° F) or an equal mix (100° F). It is sturdy, dependable and exceptionally low in cost.

Either of the above models can be furnished without flow controls at an additional reduction in cost.

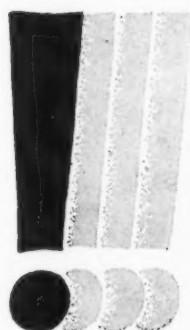
Write for Bulletin SL 10 on these two water mixing valves. There is no obligation, of course.



CONTROLS COMPANY OF AMERICA

Manufacturers of **SORENG** controls
9559 SORENG AVENUE • SCHILLER PARK, ILLINOIS

YOU *MAY* have a special **FRIT** problem



One thing is sure—*some* do—

BUT Ing-Rich ceramic engineers working day in and day out with the practical technicians in our large job enameling plant have produced a wide range of "plant tested" FRITS—many of which resulted from "special" problems.

YOURS COULD BE DIFFERENT

Ing-Rich ceramic engineers, without obligation, will honestly advise you if any of our Frits will do your job—OR—if they find you *do* have a special frit problem, will work with you to develop the correct FRIT.

WE BRING YOU VALUABLE KNOW HOW

We believe most ceramic engineers will agree that after exhaustive test in the "Lab" there comes another test of equal importance—*what happens* under practical working conditions.

Our ceramic engineers can bring you that valuable "Know How."



INGRAM-RICHARDSON, INC.
OFFICES, LABORATORY AND PLANT
FRANKFORT, INDIANA



PAINT REMOVING COMPOUNDS BY KERNS

If you have a paint removal problem contact Kerns. Whether your particular problem requires a Caustic-type, Solvent-type or Flush-off type stripper a Kerns technical service representative can help you.

As manufacturing chemists and producers of *specialized* compounds, we offer our technical services to the appliance and fabricated metal products field. Phone for a personal contact or mail the details of your problem to our Technical Service Department for *quick action*.

PRODUCERS OF:

Drawing Compounds—Cutting Compounds—Forging Compounds—Grinding Compounds—Phosphatizing Compounds—Wire Drawing Compounds—Rope and Twine Compounds—Cleaning Compounds—Cling Oils—Rolling Oils—Rust Preventives—Wire Rope Lubricants—Specialized Greases—Spray Booth Compounds.

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Offices in principal cities throughout the U. S. A.



cool metal for hot planes

For jet and rocket aircraft engines, wings and surfaces that are subject to extreme conditions of heat, friction and corrosion, where the metal *must stand up* . . . design it, improve it and protect it with McLOUTH STAINLESS STEEL.

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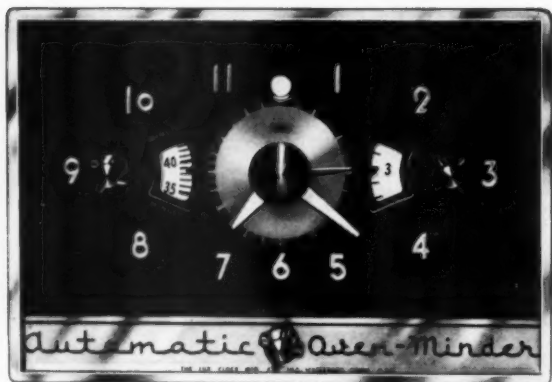
Mc LOUTH STAINLESS STEEL

HIGH QUALITY SHEET AND STRIP

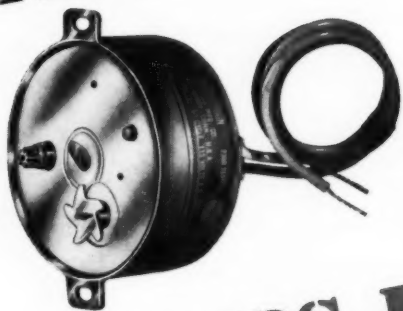
for aircraft



McLOUTH STEEL CORPORATION DETROIT, MICHIGAN
MANUFACTURERS OF STAINLESS AND CARBON STEELS



RANGE TIMER TROUBLE



STOPS HERE



THE MIRACULOUS LUX "LUBE-LESS" BEARING

Here's the point where other timers "gum up", stop and headaches step in on major appliance dealers.

Lux Timers can't "gum up" because the improved synchronous motor features an exclusive bearing requiring absolutely no lubrication—

Stop trouble before it starts. Mail coupon today or phone us collect.

LUX CLOCK MFG. CO.
DEPT. MP, WATERBURY, CONN.
I'll take you up on your offer. Rush me full
Lux timer details.

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Title
Company
Street
City Zone State



THE LUX CLOCK MANUFACTURING CO., INC.

WATERBURY 20, CONNECTICUT



PMI SELECTS DETROIT FOR 1958 SPRING TECHNICAL MEETING

H. A. Daschner, managing director of Pressed Metal Institute, Cleveland, Ohio, announced recently that Detroit, Mich. has been selected as the site for their 1958 series of Spring Technical Meetings. All meetings and clinics will be held in the Sheraton-Cadillac Hotel. E. T. Nolan, president of Advance Stamping Co., and Russell Anger, president of Anger Mfg. Co., both of Detroit, will serve as co-chairmen of the PMI Hospitality committee. They will act as hosts to Michigan stampers at an Open House Tuesday evening, March 11, 1958.

HOTPOINT PURCHASES 770 ACRES FOR EXPANSION NEAR CHICAGO

The largest single industrial property ever purchased by one manufacturer in the greater Chicago area was made by Hotpoint Company, a division of General Electric, according to a recent announcement by John C. Sharp, president. The announcement told of the purchase of a 770-acre tract of industrial property in Elk Grove, Illinois, near O'Hare International Airport.

Hotpoint's 770 acres, combined with 2200 acres belonging to a residential construction firm, Centex of Dallas, Texas, comprise what is expected to be the largest residential-industrial development ever planned in the U. S.



MPM SEPTEMBER • 1957

OIL HEATING INDUSTRY SPOKESMEN OPTIMISTIC

Confidence in a healthy future for the oil heating industry was expressed by speakers and delegates to the 35th annual convention of the Oil-Heat Institute of America, Inc., in Boston, in which a national exposition was held. A round table dealer conference was attended by 600 dealers and their personnel.

ARI INVALIDATES THREE OLD STANDARDS

In line with its policy of keeping the entire list of ARI Standards up-to-date, the Air-Conditioning and Refrigeration Institute announces that three old standards have been abandoned as "no longer valid or necessary". The three are: ARI 5-50, Insulation for Cold Storage Rooms; ARI 5-70, Location and Inspection of Data Plates on Refrigerant-Containing Vessels, and ARI 5-80, Steel and Wrought Iron Pipe. All three standards were initiated and established by the Air-Conditioning and Refrigerating Machinery Association, one of ARI's predecessor organizations. Abandonment was recommended by the Engineering committee of the ARI's Air-conditioning and Refrigeration Systems Section, and by the Section itself.

Sharp said that Hotpoint will construct a new refrigerator compressor plant on the site in the near future that will initially employ from 300 to 500 persons. Pilot production is scheduled for early 1959. He said other plants are in the planing stage and that step-by-step additions to meet increased market needs will be made during the next five to ten years.

Sharp said Hotpoint's investment in new real estate and buildings confirms the company's confidence in the nation's expanding economy, and its belief in the unlimited future growth of business and industry in the Chicagoland area.

SYMBOL FOR NATIONAL TELEVISION WEEK



With this symbol and slogan for National Television Week, September 8-14, television retailers in major cities coast-to-coast will seek increased sales of TV sets among both owners of obsolete models and one-set households. The promotion campaign is under the auspices of RETMA (Radio-Electronics-Television Manufacturers Association), now EIA (Electronics Industries Association); NARDA (National Appliance and Radio-TV Dealers Association); NEDA (National Electronic Distributors Association); NRFA (National Retail Furniture Association); NAMM (National Association of Music Merchants); and NAED (National Association of Electrical Distributors).

BENDIX AVIATION EXPANDS COMPUTER PLANT

An expansion program that doubles the size of its manufacturing facilities at Los Angeles has been announced by the Computer division of Bendix Aviation Corp.

Additional engineering, production, and marketing facilities were needed for an accelerated production program designed to keep pace with growing nationwide demand for general-purpose computers, said Maurice W. Horrell, divisional general manager.

AGA GIVES GO-AHEAD TO ALUMINUM-COATED STEEL

Gas heating appliance manufacturers can use Aluminized Steel Type 1 for heat-resistant parts up to 1030 degrees F. (plus room temperature) in units submitted to the American Gas Association for approval, according to an Armco Steel Corporation report.

The new temperature level repre-

sents an increase of 225 degrees F. in American Standards Association rating under which the AGA tests for approval. It is also 200 degrees F. above the temperatures permitted for carbon steel, and only stainless steels go above it.

SERVEL SELLS AIR CONDITIONING DIV. TO GAS COMPANY

In a proxy statement mailed recently, stockholders of Servel, Inc., were advised that the company's All-Year Air Conditioning Division had been sold to the Arkansas Louisiana Gas Co., of Shreveport, La., subject to approval by Servel stockholders.

Included in the purchase agreement, signed by officials of the two companies, are the entire business, property and assets (other than accounts receivable) of the Air Conditioning Division and the building of Servel's Defense Division, aggregating 14 acres of land and several buildings with a total of 478,000 square feet of floor space.

The total sale price is about \$4 million. This includes about \$1 million for the inventory of the All-Year Air Conditioning Division and \$3 million for other property and assets.

Servel stockholders are also being asked at their special meeting to give the company's directors authority to sell the remainder of Servel's assets when a

FRIGIDAIRE PRESENTED AWARD FOR SHEER LOOK



A special award of merit is presented to Frigidaire division of General Motors Corp. for its new "sheer look" design in 1957 appliances by the Traphagen School of Fashion in New York City. Miss Marjorie Jones, (center) of

the fashion school, is shown presenting the certificate to LeRoy E. Kiefer, of the GM Styling Section, representing Frigidaire. Miss Jane Van Alston (left) and Jack Didion (right), both of the GM styling section, look on.

sale can be arranged which the directors consider advantageous.

According to the proxy statement, the company has had exploratory discussions with several possible purchasers of the Home Appliance Division.

\$1.2 BILLION MORE IN PROJECTS SOUGHT FOR NATURAL GAS

The nation's natural gas industry has asked approval for a billion and a quarter dollars' worth of construction projects over and above the more than

PAINT FLAKES

AND HEADACHES

Better cleaning makes Pennsalt Fosbond a better phosphate coating. You know, the early preparation of the metal makes the difference, and nobody knows more than Pennsalt in that field.

Mike's been screaming about the paint flaking off these dashboard panels. Seems the iron phosphate coating isn't holding tight.

Well, let's see what the humidity and salt-spray test show.

Well, let's see what the humidity and salt-spray test show.

\$5.5 billion authorized by the Federal Power Commission up to January 1 of this year.

This is revealed in the 1957 edition of "Natural Gas Construction Data," just published by the Gas Appliance Manufacturers Association. It shows that such natural gas transmission projects alone are nearing the \$7-billion mark for postwar projects, either approved or pending. The GAMA study shows that almost every corner of the nation will share the increased fuel supplies being made available by the continuing expansion program.

CHANGE IN NAME FOR ELECTRICAL INDUSTRY BUREAU

The National Adequate Wiring Bureau has changed its name to "The National Wiring Bureau". This announcement was made by Carl T. Bremicker, chairman of the Bureau, following a unanimous vote of the Executive committee in favor of dropping the word "Adequate" from the Bureau's name.

When announcing the change, Bremicker emphasized the fact that the scope of the Bureau's program will not change. It will continue to be devoted entirely to the promotion of sufficient wiring to permit full use of electricity in residential, commercial, and institutional buildings.

PENCO METAL PRODUCTS NEARER RAW MATERIAL SOURCE



New building stands on 45-acre tract of land adjacent to the Schuylkill River.

One of the nation's newest and most modern metal fabricating plants was placed in operation recently, when the Penco Metal Products division of Alan Wood Steel Company commenced the manufacture of steel storage equipment at its new \$2,500,00 facility in Oaks, Pa.

Air-conditioned throughout, the plant contains 156,000 sq. ft. of floor area, more than three times that of Penco's former plant in Philadelphia. A 90-ft. wide fabrication area, running the entire 700-ft. length of the main building, provides straight-line, integrated production of Penco steel lockers, shelving, cabinets, and similar specialty products.

Paralleling the fabricating area are 90 ft. wide painting, assembly, inventory, and shipping sections. A de-humidified and temperature-controlled inventory department—believed to be the first in the industry—will enable the metal fabricator to stock unpainted standard assemblies without the problem of metal rusting.

New fabricating equipment, including the latest, completely-automatic system for finishing steel products, has been installed in the new plant to supplement extensive equipment and supplies moved from Penco's former location earlier.

more news on Page 88 →

Remember Brooks Ricca from Pennsalt helped us on the plating line? We'd better give him a crack at this.

Yes, Carl, we've solved this same problem for other automobile makers. I'm confident our Fosbond® system will increase paint adhesion on the zinc parts, and won't powder on the steel parts.

OK, Brooks, ship us the Fosbond so we can start on Monday

the Fosbond did the trick, Brooks. Even after the worst salt-spray exposure, the paint stays on around the scratch. And they're not wiping powder off the steel, either.

Phosphate coating of steel and zinc is a problem for specialists. When you call in your Pennsalt salesman, or mail this coupon, you're off to "A BETTER START FOR YOUR FINISH."

Pennsalt Chemicals Corp., Dept. 484
3 Penn Center, Phila. 2, Pa.

**Pennsalt
Chemicals**

Send information on Pennsalt
☐ phosphate coatings ☐ metal cleaners
☐ cold-working lubricants
Name _____ Title _____
Company _____
Address _____
City _____ Zone _____ State _____



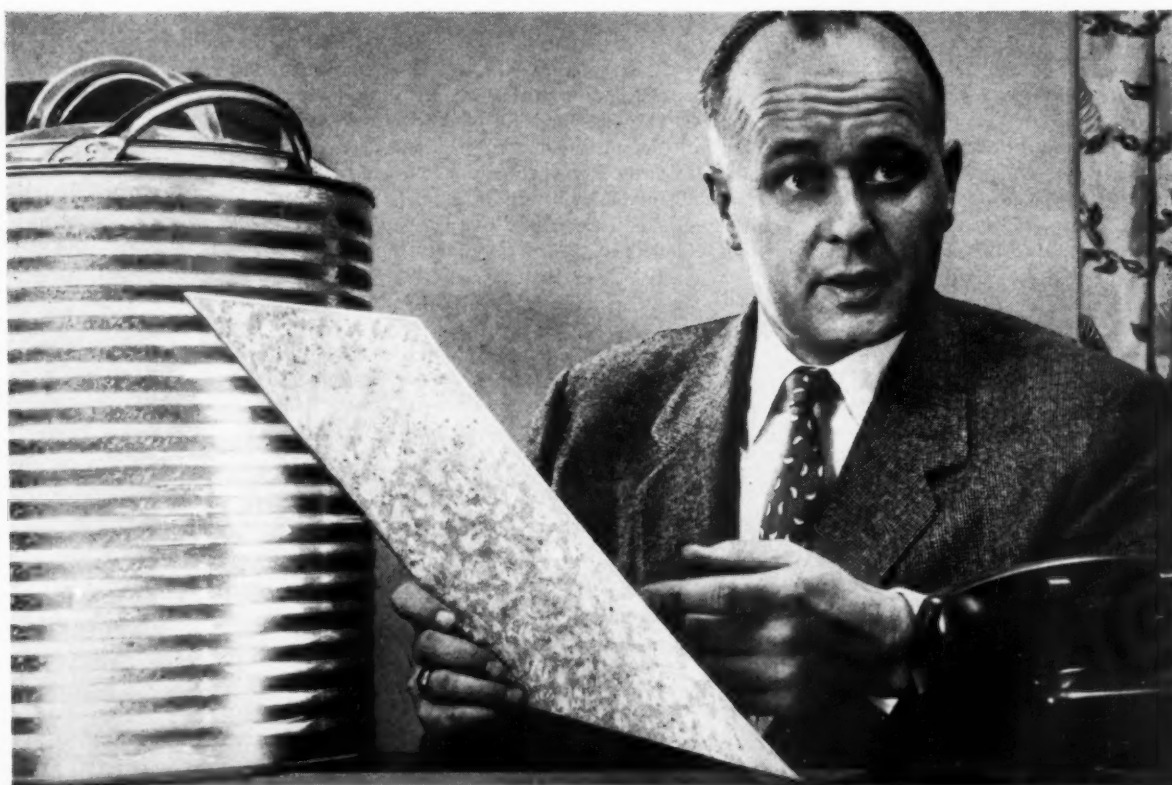
"We can make the most severe operations...



without fear of the zinc coat peeling...



thus eliminating costly electroplating, because...



...with Wheeling **sofTITE** it's finished at fabrication"

Manufacturers and sheet fabricators are discovering untold new economies using Wheeling **sofTITE** Galvanized Sheets.

For one thing, here is a sheet that really *likes* to be worked. It's soft and ductile, easy to form, easy to bend. But more, **sofTITE** has a tight zinc coating that's almost impossible to chip or flake no matter how severely it is fabricated.

And so, Wheeling **sofTITE** stays rust-resistant far longer, eliminating costly electroplating.

If you are not getting performance like this from your present galvanized sheet, or if you are using ordinary steel sheets for fear that a galvanized sheet can't take the strain, Wheeling **sofTITE** may be your answer.

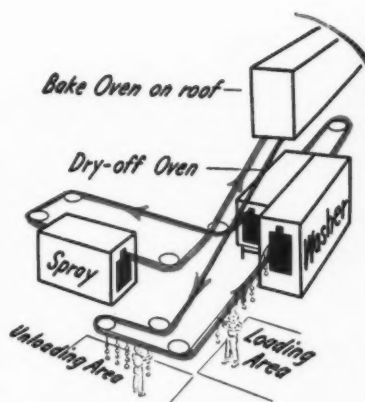
Call your Wheeling industrial supply distributor, the Wheeling sales office nearest you, or write Wheeling Steel Corporation, Wheeling, West Virginia.

IT'S WHEELING STEEL

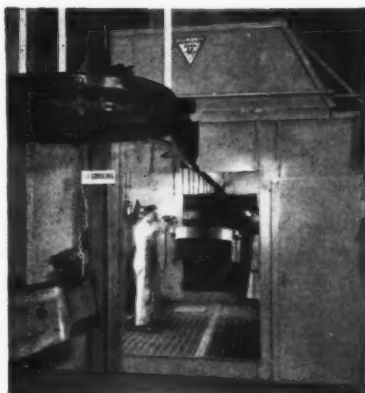


DISTRICT SALES OFFICES—Atlanta, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Detroit, Houston, New York, Philadelphia, St. Louis, San Francisco, Wheeling

OUR CHALLENGE STANDS: ANYTHING THAT CAN BE MADE OF STEEL SHEETS CAN BE MADE OF WHEELING **sofTITE** GALVANIZED SHEETS



FLOW DIAGRAM shows perspective (not actual scale) of new metal processing and paint finishing system in Tennant's new plant. Conveyor is 500 ft. long. The 74 ft. bake oven is built on the plant's roof to save floor space. Just-sprayed parts travel up and into the oven through its underside opening. Baking lasts eight minutes at 330° F.



CONVEYOR SPEED of 8 ft. per minute gives sprayers time to handle basket loads of small parts or large frames such as shown in photo. After prime coat is sprayed and baked on, parts go through system again (washer is temporarily shut off) for spraying and baking of the finish coat.



New 2-Tone Tennant Model "80" Sweeper

74 DIFFERENT PARTS, each twice sprayed and baked, are in this new Tennant Model "80" power sweeper for industrial use. The "80" goes anywhere, gobbling up dirt, debris, dust and litter. It features optimum design for most plants; will clean 19 out of 20 plant aisles in not more than two passes!



ALL PARTS first enter 3-stage 44 ft. washer at right, then return through 34 ft. dry-off oven at left. Note master control panel alongside dry-off oven. In washer, surface of metal parts is converted to iron-phosphate coating to prevent rust and corrosion. Temperature of dry-off oven is varied from 350 to 400° F., depending on size of parts.

From 80 man-hours to 24... FASTER, BRIGHTER PAINTING OF 1000 DIFFERENT PARTS!

The G. H. Tennant Company, Minneapolis, used to have trouble painting production quantities of 1000 different metal parts for their power sweepers, floor machines, scarifiers, roof scrapers and concrete routers.

This new **DESPATCH** continuous-conveyor finishing system speeds washing and drying of *all* parts (they weigh from ounces to 800 pounds) and speeds spraying and baking of the prime coat and the bright orange or cream finish coat.

The system enables Tennant to do in 24 man-hours what used to take 80 man-hours, and assures a superior finish.

The entire system was engineered, built and installed by **DESPATCH** in cooperation with the Tennant Company. **DESPATCH** can help you. There's a **DESPATCH**-trained resident engineer near you. Why not talk to him about your finishing requirements?

Write today for Bulletin 51

16 colorful pages on modern ways to achieve better finishes, faster production and smoother handling of metal products . . . at lower cost.



619 S.E. Eighth Street Minneapolis 14, Minn.

Sales and Service in All 26 Principal Cities

PIONEERS IN ENGINEERING FINISHING SYSTEMS FOR INDUSTRY

NEW ROLLING MILL FOR ALUMINUM GOODS MFG. CO.

The erection of a big, new, aluminum rolling mill to cost approximately 12 million dollars has been announced by W. F. Bugenhagen, president of the Aluminum Goods Manufacturing Company — makers of Mirro ware.

The new operation will be the newest type heavy-duty, fully integrated mill using latest methods and the most modern machinery obtainable. It will have an annual capacity of 60 million pounds of sheet aluminum.

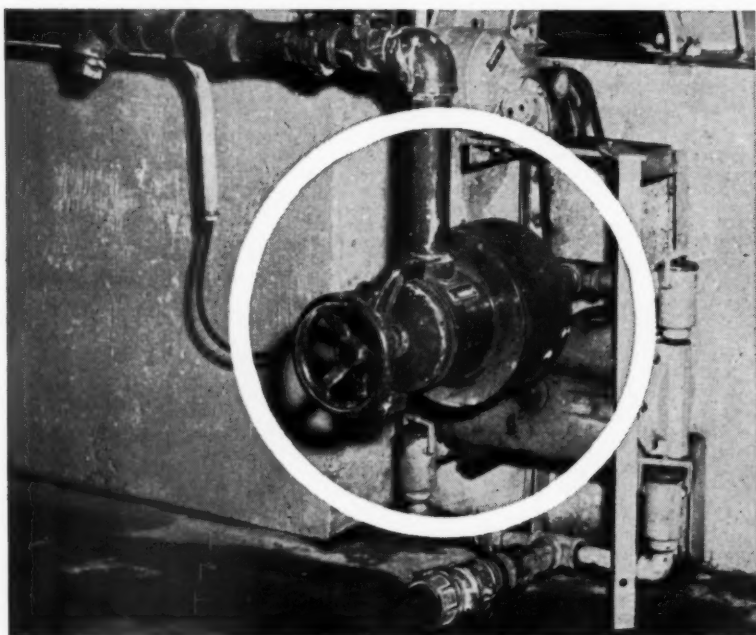
Covering 157,000 square feet, it will

be built adjacent to Mirro's new plant 5 on the outskirts of Manitowoc. It is estimated the building will take about two years to complete. It is expected to be well along in operation during 1960 and in full operation by 1961.

MAYTAG 3rd QUARTER DIVIDEND

A regular quarterly dividend of fifty cents a share on Maytag common stock was declared Aug. 6 by the board of directors.

The third-quarter dividend is payable Sept. 14 to shareowners of record at the close of business Aug. 30.



HOW TO PREVENT IRON SPOTS in Enamel Cover Coats



MAGNETIC SEPARATORS



For Complete
Information send for
BULLETIN 54-E

S. G. FRANTZ CO., Inc.
Brunswick Pike & Kline Ave.
P. O. Box 1138 Trenton 6, N.J.

BERNSOHN NAMED PROMOTION CHAIRMAN FOR TV WEEK

A. W. Bernsohn, Chicago, has been named chairman of a comprehensive merchandising and promotion campaign for National Television Week, Sept. 8 to 14. Bernsohn is executive vice-president of the National Appliance and Radio-TV Dealers Association (NARDA).



National Television Week will spearhead a broader merchandising period, "Television Fall Festival," and is being sponsored by all major segments of the industry: manufacturers, retail dealers, distributors, electric utilities, electronics suppliers, and trade associations in allied retailing fields.

2ND WORLD METALLURGICAL CONGRESS TO DRAW EXPERTS

"Hands-across-the-sea" will be extended this Fall to some 500 key metal scientists from 40 nations of the world when thousands of members of the multi-billion dollar American metal working industry gather in Chicago for the 2nd World Metallurgical Congress, and the 39th National Metal Exposition and Congress, November 2-8 at the International Amphitheatre.

Acting as host to and sponsor of the 2nd world conclave on metal resources, and their conservation and application, will be the American Society for Metals, the 28,000-member scientific organization that has developed the annual Metal Exposition and Congress to the point where it is regarded by the industry as one of its most important sales and scientific forums.

K. H. BROWN NAMED CHAIRMAN OF EIA SERVICE COMMITTEE

Kenneth H. Brown, of Westinghouse Electric Corp. has been appointed chairman of the Service Committee of the Electronic Industries Association (formerly RETMA) for the fiscal year 1958, President W. R. G. Baker announced. Brown succeeds Joseph A. Hatchwell, of Allen B. DuMont Laboratories, Inc.

The committee will continue to initiate and direct the EIA activities in the field of radio-TV set servicing. In addition, its Subcommittee on Vocational Education will continue to direct the utilization of the EIA-published series of

laboratory manuals to be used by trade, technical and vocational schools in presenting pre-employment and general training and education in the field of electronics.

NEW PLANT FOR WARREN CORPORATION

The Warren Corp., Pittsburgh, Pa., manufacturers of stainless steel and steel industrial laboratory furniture and special equipment for chemical and research laboratories, has announced that its new plant is nearing completion. The new plant is located at Clarion, Pa., and is scheduled to open before fall.



Richard J. McDermott, vice president in charge of production, has been named manager of the company's new plant, according to an announcement by Warren E. Gottschalk, president.

ELJER SIMPLIFIES STEEL BATHTUB INSTALLATION

Eljer Division of The Murray Corporation of America has announced an improvement for Eljer formed steel bathtubs that cuts installation time.

Two steel legs are added to the tub to give it a "free-standing" effect. Shims can be placed below the legs to give level installation.

Three bearing surfaces permit quick positioning of tubs, even on rough solid floors, the report states. Wall clips anchor the bath to studding for extra rigidity.

NEW SKCMA ASSOCIATE MEMBER

Admission of The Stanley Works, New Britain, Conn., to associate membership in the Steel Kitchen Cabinet Manufacturers Association has been announced by C. K. Reynolds, Jr., president of the association.

The company, a manufacturer of hardware, is a supplier to the steel kitchen cabinet industry. J. F. Moseley, manager of cabinet hardware sales, will represent the company in the association.

CISFM HOLDS SUMMER MEET

A display of components available to the stove and furnace industry was a new and popular feature of the Summer Meeting of the Canadian Institute of Stove and Furnace Manufacturer's, held at the Alpine Inn, Quebec, on June

17 and 18. Components were displayed by leading manufacturers who are members of the new Associate Member Section of the Institute.

This exhibit provided a unique opportunity and adequate time for Canadian manufacturers to show and discuss with management in stove and furnace manufacturing, the comprehensive selection of components which are of vital interest to them.

CARRIER AND ELLIOTT MERGE

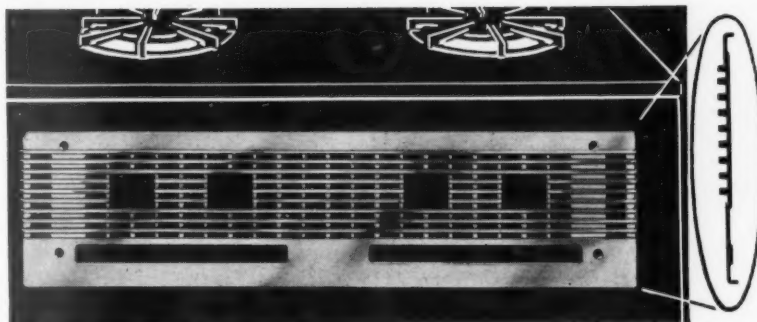
The stockholders of Carrier Corporation and Elliott Company recently ap-

proved the merger terms as submitted by their boards of directors. Effective at the close of business July 31, 1957, Elliott Company became an operating division of Carrier Corporation under its present management, with William A. Elliott continuing as president.

With headquarters in Jeannette, Pa., Elliott Company is a producer of steam-turbines and electrical equipment. It also manufactures industrial process machinery, including power recovery gas turbines and turbo chargers.

Elliott operates four plants and has total assets of \$44,600,000. Its net sales in 1956 amounted to \$45,150,000.

LIGHT METALS CORPORATION CREATES NEW PRODUCTION ECONOMIES WITH *Extruded Aluminum*



This manifold trim panel is another one of the many new applications currently being developed for extruded aluminum and here's why extruded aluminum was chosen: low tool cost, corrosion resistant, tarnish proof, beautiful finish is inexpensive and permanent and by utilizing modern production line fabricating methods this part could be designed to perform three purposes economically. It serves as a "manifold", as a nameplate holder and a very attractive decorative trim part.

Routing: extrude aluminum billet, pierce slots, form ends, drill and countersink four holes, chemical bright and clear anodize. All done in our own plant — YOU make one buy . . . ONE follow-up!

Have you investigated the possibilities of extruded aluminum for your trim parts? Whether you manufacture refrigerators, ranges, air-conditioners or any other product, we invite you to check with us as we can help you from the very first glimmer of an idea through the creative stage right on to the completion of the finished part shipped to you ready for easy assembly. Designing, engineering, dies built, extruding, fabricating and anodizing all done in our one plant.

We'd like to send you a copy of our new brochure. In it you will see some unusual applications and many new ways of using extruded aluminum. The chances are you will get an idea or two for your own use.

Send for your free copy today!

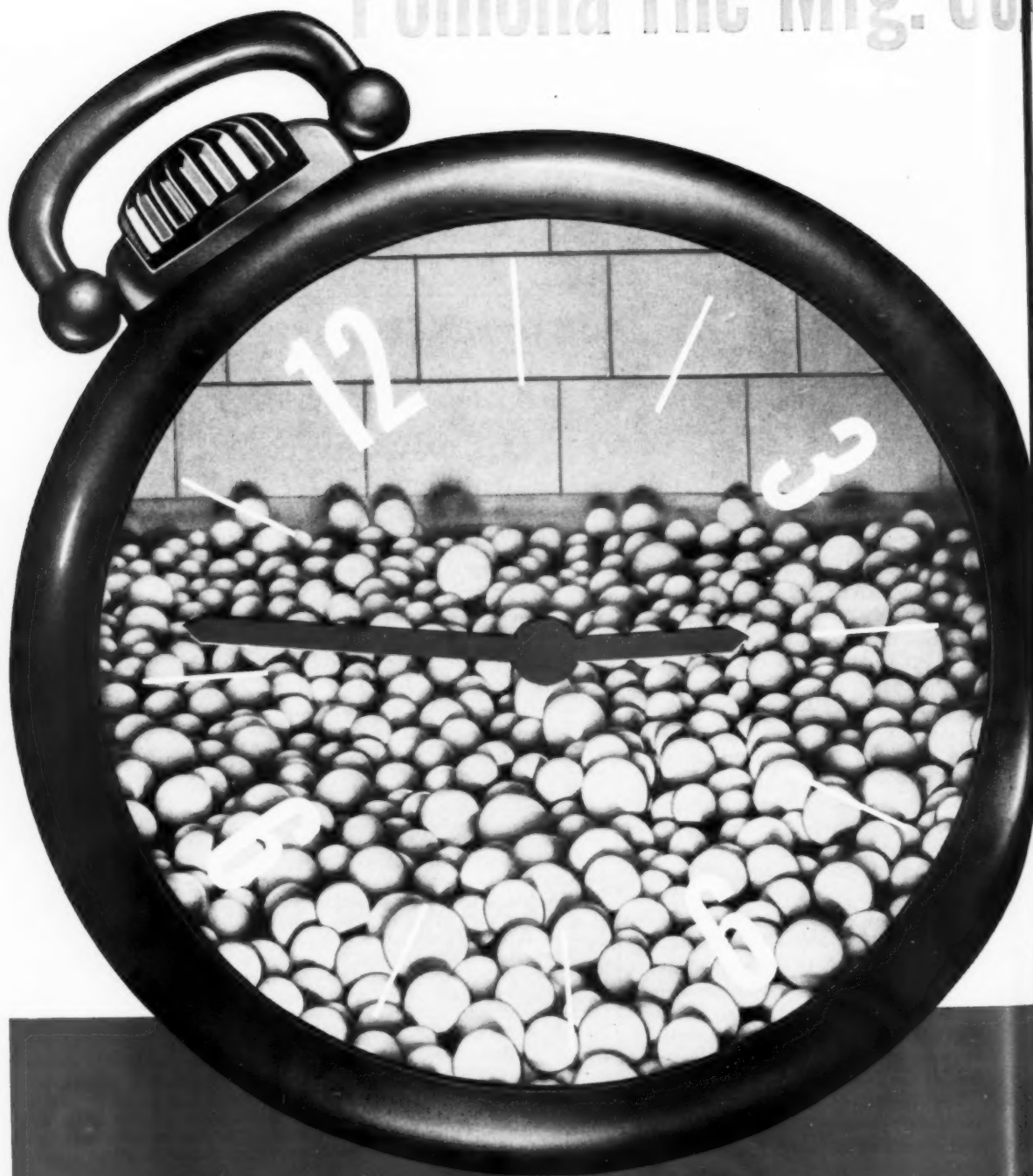
LIGHT METALS CORPORATION

EXTRUDED ALUMINUM • COMPLETE FABRICATION FACILITIES • ANODIZING

1223 Monroe N.W.

Grand Rapids 5, Michigan

Pomona Tile Mfg. Co.



For technical information, please write:

LZP INDUSTRIAL CERAMICS CO. 275 Kalamath St., Denver 23, Colo.

National Sales Representatives for

COORS PORCELAIN COMPANY

Coors High Density Grinding Media and Liner Brick are made isocratically of special alumina ceramic, and fired at 2670°F to a specific gravity of 3.4. These products can help speed your mill production.

Arkansas City, Kansas

reduces
grinding
time

52%

and at the same time
increases glaze charges 10%

with *Coors* equipped mills!

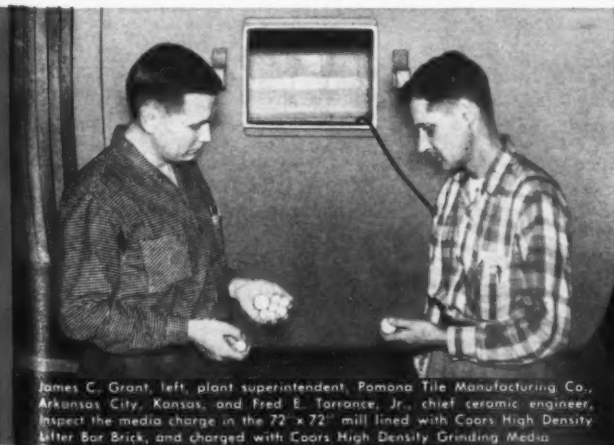
"We have reduced our grinding time by roughly 52%, and at the same time have been able to increase the size of our glaze charges by about 10%.

"We now have two mills in use that are equipped with Coors High Density Lifter Bar Linings and Grinding Media. Our first Coors lining installation was made in September, 1955, in a 42" x 60" mill. The second installation was made in late 1956, in a 72" x 72" mill using a 1½" lifter bar shell lining with 2" head brick.

"The first of these two linings has in every way proved itself superior to conventional types of lining. There has to date been no maintenance or replacement cost in connection with this lining which has had 18

months service thus far. The high density grinding media shows extremely low weight loss, being roughly 0.1% of the total weight of balls used per charge. We have used other types of grinding media showing weight loss as high as 1% of the total weight of media used per glaze charge.

"The use of Coors High Density Mill Liners and Coors High Density Grinding Media has been a substantial step forward in improving quality and control, and in lowering the cost of the glaze preparation operation here in our plant."—James C. Grant, Plant Superintendent, Pomona Tile Manufacturing Co., Arkansas City, Kansas.



James C. Grant, left, plant superintendent, Pomona Tile Manufacturing Co., Arkansas City, Kansas, and Fred E. Torrance, Jr., chief ceramic engineer, inspect the media charge in the 72" x 72" mill lined with Coors High Density Lifter Bar Brick, and charged with Coors High Density Grinding Media.

LZP Industrial Ceramics Co.
275 Kalamath St.
Denver 23, Colorado

Please send technical information and samples of
Coors High Density Grinding Media.

Name.....

Title.....

Company.....

Address.....

City.....State.....



Latex paints for metal cut fire hazard

You'll solve a lot of plant problems when you switch to metal finishes made with latex.

In the first place, you'll reduce fire hazard and may lower your insurance rates because, in these modern paints, water replaces flammable thinners. You'll eliminate disagreeable paint odors. You'll effect safer, more pleasant working conditions with latex metal paints.

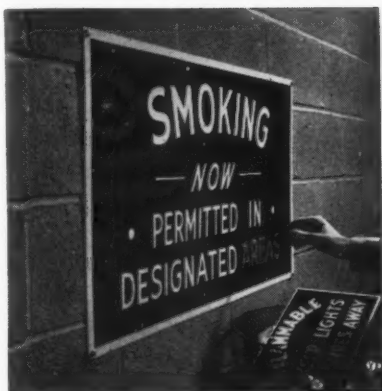
And you needn't worry about rust resulting from the water

thinner. These latex paints for metal will not cause rusting. Moreover, a latex paint system will fit easily into your present shop set-up without heavy investment in new equipment. Check your industrial finish supplier now.

THE DOW CHEMICAL COMPANY,
Midland, Michigan, Plastics
Sales Department 1849UU.



YOU CAN DEPEND ON



Dow makes paint raw materials

The Dow Chemical Company does not make paint but has been for years a major supplier of many basic raw materials used by the paint industry. In 1946, Dow introduced the first latex for the manufacture of paint and since that time has worked closely with the paint industry in developing new paint products based on a series of Dow latexes.

Water-thinnable latex paints—a growing market

Since the first successful latex paint was developed for application to interior walls, the use of latex in paints of this type has increased tremendously. In step with this rapid growth, The Dow Chemical Company and the paint industry have long conducted research on the application of latex for paints and finishes in the industrial field.

Latex metal finishes—product of intensive research

Because latex paints are water-thinnable, there were many problems to be solved before the excellent properties inherent in Dow latex could be successfully applied in the metal finishing field. But these problems were met and solved. Then followed extensive tests in the laboratory and field. Now the results are in . . . water-thinned latex finishes for metal are a reality.

Latex basic to many metal finish applications

The primary research on latex finishes done by Dow and carried into complete paint formulations by metal finish manufacturers, can now be applied to specific product requirements of the industrial finish user. Since each consumer of industrial finishes will have very specific requirements, it now remains for the paint supplier to provide specific formulations based on latex for each application. Dow suggests that you work closely with your industrial finish supplier in developing finishes to your specifications based on this important new raw material, Dow latex.

THE DOW CHEMICAL COMPANY
Midland, Michigan

SUPPLIER PERSONALS

Gerald Z. Laetsch, Lauson Engine Div., Tecumseh Products Co. general sales manager, has been given the added responsibility of directing sales of Power Products engines, according to Richard C. Roll, Tecumseh Products Co. vice president, in a recent announcement.

James S. Sullivan, who was a sales executive with the Power Products Co. before its purchase by Tecumseh June 1st, will be the assistant general sales manager of Lauson Engine Division, Tecumseh Products Co.



LAETSCH



SULLIVAN

Arthur R. MacNeil, New England sales manager for MacDermid Incorporated, Waterbury, Conn., has been named vice-president of the company. MacNeil will continue as New England sales manager along with his new duties as vice president. He joined MacDermid Incorporated in 1945 as a technical sales representative for the company's complete line of metal cleaning, plating, and finishing products.

Kenneth H. Pierce has been appointed sales manager for Precision Castparts Corp., Portland, Oregon, investment casting firm, according to a recent announcement by Edward C. Cooley, general manager of the the company.

John M. Welch has joined Olin Mathieson Chemical Corp. as Chicago regional sales manager for Olin Aluminum.



PIERCE



WELCH

Ferro Corp. has announced the appointment of *Henry W. Fishkin* to the position of manager of the Frit and Glaze Division's New York sales service district, a post vacated by the retirement on Sept. 1 of William H. Wilson, a 27-year veteran of the company.

Wilson began selling frit, glaze, and color oxides for Ferro in 1930. He received his law degree from Syracuse University in 1916.

Fishkin is a graduate of Rutgers University where he received his Ceramic Engineering degree in 1948, and has been with Ferro for nine years.



FISHKIN



WILSON

Laurance S. Rockefeller, president and director of Rockefeller Brothers, Inc., and *Robert W. Purcell*, business adviser to the firm, have been elected to the Vitro Corporation of American board of directors, it was announced recently by Charles S. Payson, board chairman.

Peter B. Davies has been appointed sales manager of Proctor Electric Company's Equipment Division, it was announced by Walter M. Schwartz, Jr., president. Davies will supervise sales and service of Proctor's line of infinite controls for electric ranges and similar industrial applications.

Ben Gurley, Jr. has been appointed vice president of sales for Olin Aluminum, Walter F. O'Connell, executive vice president of Olin Mathieson Chemical Corp. announced recently. Gurley had been vice president, sales, of H. K. Porter Co., Inc., Pittsburgh.



DAVIES



GURLEY

NEWS about Suppliers

DEMONSTRATE QUICK DIE CHANGE PRESSES



An interesting demonstration was held recently at Danly Machine Specialties, Inc., Chicago, to show their new line of Quick Die Change Presses.

The demonstration of Quick Die Change Presses included both single and double action, underdrive presses. These machines are part of two complete lines now being built for SIMCA, European automobile manufacturer.

The Danly Quick Die Change Presses use two moving bolsters permitting die changes to be made in a matter of minutes, thereby eliminating the need for lengthy production delays due to changing dies. Each of these new presses is equipped with two bolster plates, and each bolster is mounted on a power driven, heavy duty carrier. The bolster plate and carrier make up the Die Carrier Assembly. The Die Carrier moves at the touch of a button onto the press bed on rails built at floor level.

This design permits a set of dies mounted on one die carrier to be running production while a second set of dies is being set up on the second die carrier. Changing production from one set of dies to another becomes simply a matter of moving one die out of the working position to one side and moving the second die carrier and die into the working position from the opposite side.

The correct shut height for the second die can be dialed on the Automatic Slide Positioner, developed by Danly, which enables accurate and rapid positioning. The press can be turned over on a test stamping using the Microinching Drive which eliminates excessive clutch and brake wear resulting from repeated inching. The Danly Microinching Drive is a slow speed, reversible press drive that may be operated independently of the main motor drive, yet delivers the full rated capacity of the press.

WELDING EQUIPMENT SHIPMENTS CONTINUE AT STEADY LEVEL

Statistics compiled by the Resistance Welder Manufacturers' Association indicate that shipments of resistance welding equipment by members during the first six months of 1957 have maintained

an active pace, and are only slightly below shipments for the same period in 1956.

June shipments were more than \$21½ million, the fourth consecutive month above that figure, and the backlog at the end of June was reported at nearly \$11 million.

ACME STEEL BREAKS GROUND FOR \$23 MILLION STEELMAKING PLANT

Ground was broken recently for Acme Steel Company's new 23-million dollar steel plant in Riverdale, Illinois near the present Acme facilities, according to F. M. Gillies, chairman of the board. The new plant will introduce to this country a new process in steel production, the combination of hot blast cupolas and oxygen-blown converters.

CINCINNATI GETS 3M BRANCH

Opening of a new branch office and warehouse at Cincinnati, Ohio has been announced by Minnesota Mining & Manufacturing Co. The new facilities are part of 3M's program to extend and improve service to customers in that area, according to branch office manager R. H. Vieth.

3M manufactures more than 300 varieties of "Scotch" Brand pressure-sensitive tapes; coated abrasives, adhesives and coatings, electrical insulating products, magnetic recording tapes, roofing granules, reflective sheeting, printing products, decorative ribbon, chemicals, office copying equipment, and reinforced plastic sheeting and pipe.

SONOBOND CORPORATION ULTRASONIC JOINING METHODS

Aeroprojects Incorporated, West Chester, Pa., has recently formed a subsidiary company, Sonobond Corporation, to manufacture, sell, and service ultrasonic metal-joining equipment that Aeroprojects has developed. Formation of the new company was announced by Aeroprojects' president, J. Byron Jones.

Three lines of ultrasonic metal-joining equipment have been developed during the past six years: Sonoweld, ultrasonic non-fusion welding equipment; Sonobraz, ultrasonic fluxless brazing equipment; and Sonosolder, ultrasonic fluxless soldering equipment.

YOUNGSTOWN KITCHENS MOVES

Consolidation of all sales, advertising and sales promotion, dealer development and sales relations offices of Youngstown Kitchens Division of American-Standard at the firm's Salem, Ohio plant, effective September 15, was announced recently by C. D. Alderman, division president.

These offices have been located at the division's Warren, Ohio, plant for many years. However, executive and administrative offices are in Salem. Alderman said the move is being made in order to bring all elements of management into a central place.

DOLE VALVE OCCUPIES NEW ADMINISTRATIVE HEADQUARTERS



The Dole Valve Co. has completed its move to new administrative headquarters adjoining its manufacturing plant in Morton Grove, Ill., a Chicago suburb, it has been announced by John L. Dole, president.

The two-story building, located at 6201 Oakton St., is the latest of the new units to be completed on a 25-acre site, and houses the company's sales and en-

gineering departments and research and development laboratories, as well as its executive offices. The adjoining one-story manufacturing building was constructed in three units, beginning with the completion of an initial 100,000-foot section in 1952.

Dole manufactures controls and valves for automatic home laundry and dishwashing machines, dryers, etc.

KOEHRING CO. ACQUIRES HENRY & WRIGHT DIVISION

The Hydraulic Press Manufacturing Co., a division of Koehring Co., Mount Gilead, Ohio, has acquired the Henry & Wright Division of Emhart Manufacturing Co., Hartford, Conn. Boards of both Koehring and Emhart approved final negotiations at a recent meeting. Sources at Koehring estimate the price will be in excess of \$1¼ million.

Henry & Wright will operate as a department of H-P-M. The Henry & Wright dieing machine, a high speed, precision mechanical press built in capacities up to 500 tons, is widely used in a great many industries including automotive and appliance. The purchase has made it possible for H-P-M, manufacturer of hydraulic presses, to enter the mechanical press field, Julien R. Steelman, Koehring's president, said.

COCHRANE ESTABLISHES CANADIAN HEADQUARTERS

Cochran Water Conditioning Limited, subsidiary of Cochrane Corporation, Philadelphia, recently announced the establishment of permanent headquarters in its new building at 1355 Martin Grove Road, Toronto, Canada.

Here the company provides complete facilities for the sale, engineering design, manufacture and field service of its industrial water conditioning products.

RECORD SALES

The highest mid-year sales level in its history was reached during the first half of 1957 by Eastern Stainless Steel Corporation. Reflecting the firm's record pace of recent months, the consolidated report of the Baltimore corporation and its marketing subsidiary, Industrial

Stainless Steels, Inc., Cambridge, Mass., showed record net sales to June 30 of \$27,628,265, a 10 per cent increase over the previous high of \$25,103,450 for the corresponding 1956 period.

RANCO ESTABLISHES NEW ITALIAN SUBSIDIARY

Ranco, Inc., Columbus, Ohio, manufacturer of refrigeration controls, has organized a new wholly-owned Italian subsidiary, Ranco Italiana S.p.A., A. M. Hoover, president of the firm announced recently.

The new firm, with an initial capitalization of 225,000,000 lira, will be located in Italy's northern industrial section. Production of refrigeration controls and compressor rotor and stator units, principally for the Italian market, will begin early this fall.

COLSON CORPORATION TO BUILD NEW PLANT

The Colson Corp., Elyria, Ohio, manufacturer of wheeled products for institutions and industrial material handling equipment, recently announced construction of a new plant for caster production in Jonesboro, Ark. The bulk of Colson's caster operations will be concentrated in the new 89,000-square foot facility. The company will continue to have its headquarters in Elyria.

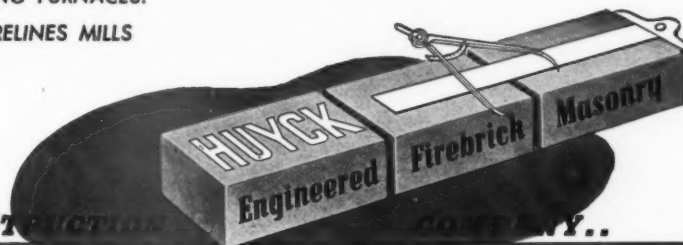
NEW SINTERING PLANT FOR INLAND STEEL

Inland Steel announced recently that it has contracted for construction at its Indiana Harbor Works of a new sintering plant designed to expand its iron-making capacity by 300,000 tons a year. The new plant, which will treat fine particles of iron-bearing materials before they are fed into blast furnaces, will have twice the capacity of the company's present sintering facilities.

HUYCK FURNISHES FIREBRICK MASONRY TO BUILD, REBUILD AND REPAIR ALL TYPES OF: ENAMELING FURNACES . . . FRIT SMELTERS . . . ALUMINUM, BRASS, LEAD SMELTERS . . . FORGE FURNACES . . . HEAT TREATING FURNACES.

HUYCK LINES AND RELINES MILLS

Huyck construction




HUYCK MASONRY IS GUARANTEED TO GIVE YOU BETTER PERFORMANCE AND LONGER LIFE

1861 DeCook Avenue • Park Ridge, Illinois • TALcott 3-0612



Here is a Story of



MILLS PRODUCTS • Incorporated

Manufacturers of Sealed OVEN DOOR WINDOWS

PERMA-VIEW

Telephone
MARKET 4-2200

1015 WEST MAPLE ROAD
WALLED LAKE, MICHIGAN

July 22, 1957

Mr. Dana Chase
Dana Chase Publications
Elmhurst, Illinois

Dear Mr. Chase:

We have recently closed our seventh year of continuous advertising for our PERMA-VIEW windows. As in all previous years, it is my pleasure to report that for each succeeding year there has been a fine gain in business for us.

As reported for earlier years, we showed:

- at the end of one year -- 100% increase in number of accounts served;
- at the end of three years -- 400% increase in sales and a new plant;
- at the end of four years -- additional production facilities and a gain in business of 686%; and
- now, at the end of seven years -- a gain of 2053% for the period.

In addition to our plant expansions and this recorded gain in total business, I can tell you that while we were serving only five active customers in the range industry prior to starting our advertising campaign with you we are now serving sixty-one leading producers of free-standing and built-in gas and electric ranges.

As in the past you may feel free to use our letter report as you see fit in connection with your own advertising. Our enthusiasm for MPM continues to grow.

Yours very truly,

MILLS PRODUCTS, INC.

Herbert E. Mills
Herbert E. Mills,
President

STOVE HANDLES

OVEN DOOR WINDOWS

CHROME TRIM

SERVING THE *Appliance* ANAL

Advertising Results in Black and White

A SEVEN YEAR CASE HISTORY OF PERMA-VIEW
OVEN DOOR WINDOWS AS PRODUCED AND
SOLD BY MILLS PRODUCTS, INC.

...2053% increase in sales in 7 years

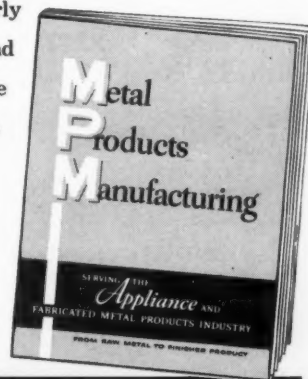
The first PERMA-VIEW advertisement appeared in July, 1950. Mills Products, Inc. carried a continuous campaign of one black and white page each month for five years, except for an occasional two-color spread. The current advertising program in MPM includes two-color bleed pages and two-color bleed spreads.

What have been the results of this continuous campaign?

The accompanying letter details the increases in sales at the end of one, three, four and seven years compared with the year immediately preceding the start of advertising. A 2053% increase in sales and an increase from 5 to 61 customers in the volume producing range industry represents positive proof of advertising results.

Here is one of the rare instances where advertising results can be definitely measured . . . because . . . Mills Products, Inc. travels no field men, all contacts being made by the principals from the factory . . . and . . . MPM is the only advertising medium used for promoting PERMA-VIEW windows.

Here is POSITIVE PROOF that if you have the right material, equipment, component or service for the appliance and fabricated metal products manufacturing field . . . and present it properly in MPM . . . the men who engineer and build the metal products, plus those who purchase for and manage the producing plants, will respond.



FABRICATED METAL PRODUCTS INDUSTRY

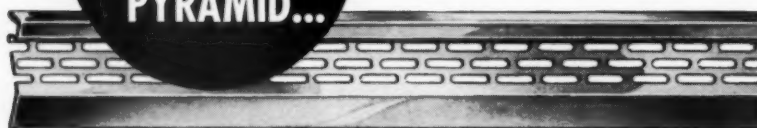
Dana Chase PUBLICATIONS

Elmhurst National Bank Building • York Street at Park Avenue • Elmhurst, Illinois

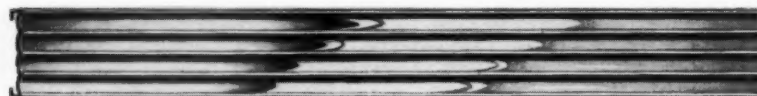
TErrace 4-5280

**MOULDINGS
by
PYRAMID...**

**offer widest variation
for new design creation**



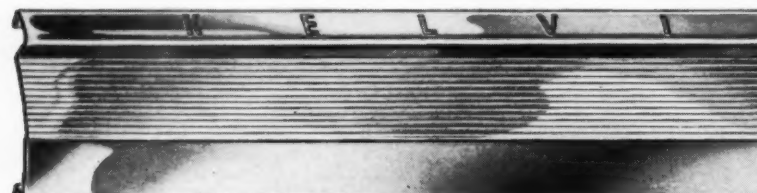
PERFORATION or piercing in roll formed mouldings meets a new trend in lamp shade trim for unusual lighting effect.



CORRUGATION, fluting, beading or reeding—yours in endless variety through Pyramid's low-cost precision roll-forming.



DECORATION with baked enamel striping as shown, or entirely pre-enamelled, adds the magic of color to functional trim.



IDENTIFICATION and trim combined mean lower die cost when lettering is embossed or debossed on roll-formed sections.



TERMINATION with appropriate end closures (above and below) puts the finishing touch on almost any moulding design.



STIMULATION of sales with decorative and functional roll-formed metal mouldings—a Pyramid specialty for 30 years!

Write Today for Your "Plan Book of Metal Mouldings."

Pyramid Mouldings Inc.

5365 WEST ARMSTRONG AVE., CHICAGO 30, ILL.
NEW YORK...CALIFORNIA

**PEOPLE YOU KNOW
(or should know)**



Roy A. Bradt retired from The Maytag Company, Newton, Iowa on September 1, 1957. The home laundry industry will miss this man who has been a mainstay and active participant in major activities for many years.

A charter member of the Maytag Twenty-Five Year club, he came to the company January 3, 1916 from Pocahontas, Iowa where he had been employed in a machine shop. He was transferred to the sales department later that year and returned to that department in 1919 after serving two years in the Army Signal Corps during World War I.

In 1921 he was named advertising manager, and, in 1924, also became associate sales manager. He was elected a vice-president and director of the company in 1928 and, in 1944, was placed in charge of the marketing division.

Senior officer in the American Home Laundry Manufacturers Association, Bradt has been active in this group since 1923. Presently a director of AHLMA, he was cited for distinguished service to that organization in 1950. He served two terms as association president in 1947 and 1948 and, prior to that time, had served six years on its executive committee. In addition, he has served on numerous committees of the association.

Listed in *Who's Who in America*, Bradt is a past director of the American Management Association and served on the advisory board of the National Production Authority. He is a past-president of the Iowa Manufacturers Association, and past director and member of the executive committee of the National Association of Manufacturers.

Send your suggestions for men you would like to see featured in this column.

METAL PRODUCTS STATISTICS

a current report on available production, shipment and sales figures for important products in the appliance and fabricated metal products manufacturing field

GAS WATER HEATERS — June shipments 215,000 units, 14.5 per cent below '56; first six months 1,336,500, 11.1 per cent below '56.

GAS RANGES, BUILT-IN — June shipments 19,300, 23.7 per cent gain over '56; first half 90,400, 16.5 per cent increase over '56.

GAS RANGES, FREE-STANDING — June shipments 137,700, 18.8 per cent below '56; first half 880,200, 13 per cent below '56.

GAS FURNACES — June shipments 54,600, 22.2 per cent below '56; first half 303,300, 14.3 per cent below '56.

GAS FIRED BOILERS — June shipments 8,200, 10.8 per cent over '56; first half 37,000, same as '56.

GAS CONVERSION BURNERS — June shipments 10,900, 30.1 per cent below '56; first half 50,300, 19.8 per cent below '56.

ELECTRIC REFRIGERATORS — June shipments 305,100, 13.9 per cent below '56; first half 1,803,800, 13.4 per cent below '56.

ELECTRIC FREEZERS — June shipments 94,800, 2.0 per cent over '56; first half 471,200, 9.1 per cent below '56.

ELECTRIC RANGES, BUILT-IN — June shipments 36,400, 4.5 per cent below '56; first half 214,200, 10.1 per cent over '56.

ELECTRIC RANGES, FREE-STANDING — June shipments 65,900, 28.1 per cent below '56; first half 500,500, 27.4 per cent below '56.

ELECTRIC WATER HEATERS — June shipments 70,500, 14.2 per cent below '56; first half 392,700, 17.1 per cent below '56.

ELECTRIC DISHWASHERS — June shipments 33,500, 3.5 per cent below '56; first half 191,300, 16.4 per cent below '56.

ELECTRIC FOOD WASTE DISPOSERS — June shipments 44,700, 3.7 per cent below '56; first half 256,200, 20.7 per cent below '56.

COMBINATION WASHER-DRYER — June factory sales 8,453, 10 per cent below May '57; no comparable '56 figures available.

WASHERS, AUTOMATIC & SEMI-AUTOMATIC* — June factory sales 204,473, 17 per cent below '56; first half 1,274,602, 20.0 per cent below '56.

WASHERS, WRINGER & ALL OTHER — June factory sales 77,816, 18 per cent below '56; first half 429,656, 28 per cent below '56.

ELECTRIC DRYERS — June factory sales 32,702, 23 per cent below '56; first half 322,382, 28 per cent below '56.

GAS DRYERS — June factory sales 14,081, 16 per cent below '56; first half 141,629, 12 per cent below '56.

IRONERS — June factory sales 3,537, 2 per cent below '56; first half 21,135, 21 per cent below '56.

VACUUM CLEANERS — June factory sales 207,286, 16.5 per cent below '56; first half 1,610,530, 15.7 per cent below '56.

METAL FURNITURE — June shipments were 2.0 per cent over '56; first half was 12 per cent below '56.

TELEVISION — June production 543,778, 1.8 per cent below '56; first half 2,722,139, 20.2 per cent below '56.

RADIO (Including Automobile Receivers) — June production 1,088,343, 1.3 per cent over '56; first half 7,187,294, 8.0 per cent over '56.

COMPRESSOR BODIES — Shipments for March, April and May 1,358,217, compared with 1,449,054 for the same period of '56.

Sources for this information: Gas Appliance Manufacturers Association, National Electrical Manufacturers Association, American Home Laundry Manufacturers Association, Vacuum Cleaner Manufacturers Association, National Association of Furniture Manufacturers, Radio-Electronics-Television Manufacturers Association, and Air Conditioning and Refrigeration Institute.

*Note: During 1956, combination washer-dryers were reported once as an automatic washer and once as an electric or gas dryer. The 1957 per cent of change from 1956 on this basis is: Total Home Laundry Appliances down 16 per cent; Total Washers down 18 per cent; Automatic and semi-Automatic Washers down 14 per cent; Total Dryers down 9 per cent.

Do You Have A Deburring Headache?

GET THE FACTS ABOUT

CRATEX RUBBERIZED ABRASIVES

"The World's Best For Industrial Use"

Exceptionally superior and unparalleled for:

**DEBURRING, SMOOTHING, CLEANING
and POLISHING operations
after dimensional shaping**

For removing rust, heat-marks, tarnish, fatigue lines, scratches, excess solder, corrosion and other surface defects: for blending-in polishing welded seams, final sharpening and polishing to lustre-like finish.



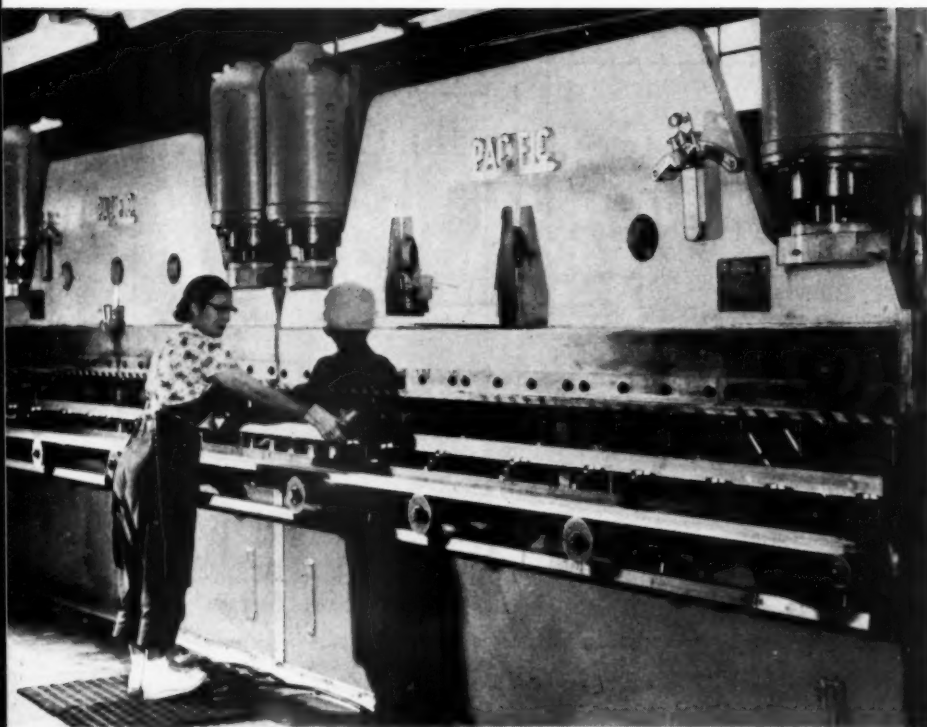
**CRATEX IS MADE
IN FOUR DIFFERENT GRITS
Coarse Grit to Extra Fine in
WHEELS • POINTS • BLOCKS
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For Machine or Manual Application
on the broadest range of
Hard and Soft METALS
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Backed by over 30 years industrial, professional and technical application, CRATEX Rubberized Abrasives are widely used nationally and in foreign countries. Made from "premium quality chemical rubber bonds" pressure-molded into uniform textures without hard or soft spots—resilient to absorb shock—ready for instant use—offer uniform controlled "cushioned action" with ease of manipulation for dimensional accuracy, without loss of tolerances.

**OPERATE SAFELY, EFFECTIVELY AT
SPEEDS UP TO 5,500 S.F.P.M.**

Send for comprehensive illustrated catalog—learn how CRATEX Rubberized Abrasives can cut your costs, speed production and insure quality results. Sold at leading industrial supply dealers.

**CRATEX MANUFACTURING CO.
81 Natoma St., San Francisco 5, Calif.**



Tandem-operated press brakes punch 20-foot extrusions in single operation.

Tandem press brake operation cuts costs

TWO standard-size hydraulic press brakes operated in tandem to punch 20-foot long extrusions save investment in large, custom-built brake at Bourne Products, Inc., El Cajon, Calif. Opera-

tor controls both machines simultaneously by single foot pedal. In punching short pieces, brakes are operated independently. For further information, contact Dept. MPM, Pacific Industrial Mfg. Co., 848 Forty-ninth Ave., Oakland 1, Calif., or Special Projects Editor, METAL PRODUCTS MANUFACTURING.

A new metallic-base paint circulating supply pump

AN air-powered pump that agitates, pumps, and circulates metallic-base, and all similar, paints direct from original 5-10 gallon pails to spray gun and back to pail without exerting pressures on, or in, the container is shown.

This new Graco unit is specifically designed to keep metallic-base paints in constant suspension, even when material is not being sprayed. Separate air-driven agitator, plus constant circulation through hoses, provides dual agitation in pail, and provides constant uniformity and viscosity.

Air-powered pump is spark free, and is designed to automatically speed up to compensate for spray gun demand, at the same time maintaining previously-set fluid flow. For more information write Dept. MPM, Gray Co., Inc., 1097 Sibley St., N. E., Minneapolis 13, Minn., or Special Projects Editor, METAL PRODUCTS MANUFACTURING.

Left: Cutaway section of air-powered pump showing disposable paint container in place inside outer shell of pump. System prevents messy spilling and pouring of material into container, and maintains previously-set fluid flow.

Air-powered pump is spark free.



Interesting Industry Developments

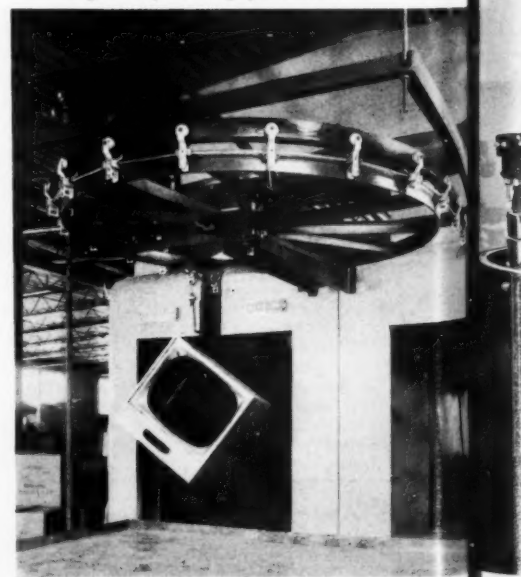
Caterpillar drive for cable conveyors

A NEW caterpillar drive for cable conveyors increases the application potential of overhead cable trolley conveyors. Applied on the straight run of conveyors, this drive allows large-radius traction-wheel turns to be made. As a result, sizeable loads can be handled on close-hook centers.

The caterpillar drive has two strands of precision chain with special dogs that engage the cable and trolley with equal pressure from both sides. Side thrust is carried by both chains, so that cable movement is transmitted smoothly during engagement.

Traction wheels of large radii guide the cable around idler corners and permit clearance of large packages. Wheels have anti-friction bearings. The new caterpillar drive and traction-wheel turns, together with conventional corner-sheave drive and turns of smaller radii, offer a broad range of application for all types of industries. For complete details, write Dept MPM, The E. W. Buschman Co., Clifton and Spring Grove Avenues, Cincinnati 32, Ohio or Special Projects Ed., METAL PRODUCTS MANUFACTURING.

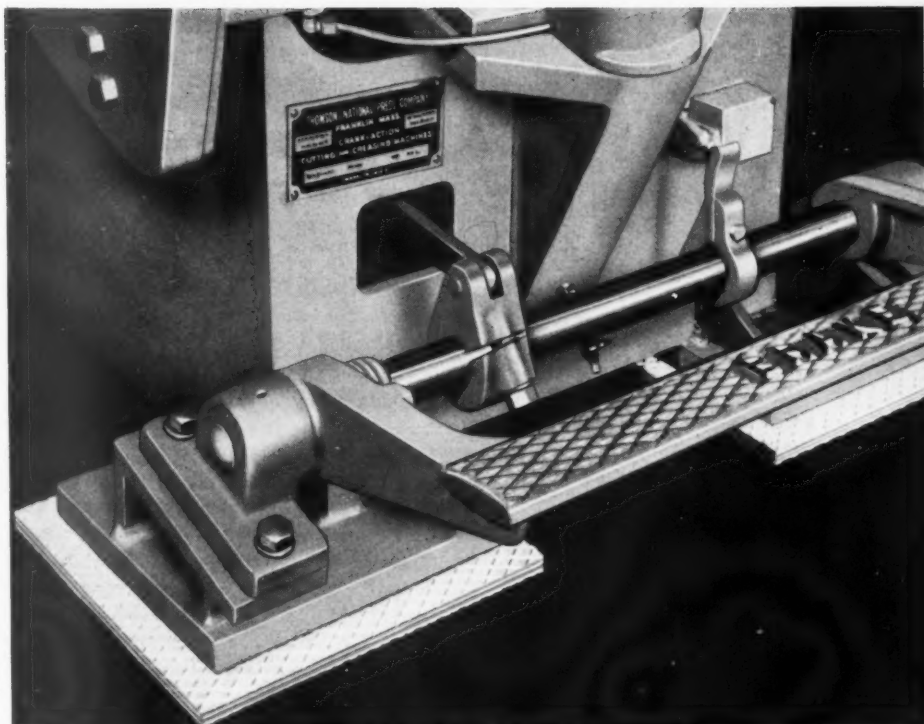
Busch-Lock cable conveyor five-foot diameter traction wheel 180° turn carries metal television cabinets through cleaning and finishing processes.



Automatic multi-station rotary bonding machine for many uses

A full line of automatic multi-station rotary-cycle bonding machines, with control of all primary bonding factors, has been announced. The machines are offered in a capacity range of from single to multi-station stationary types, and up to forty-station rotary types, for permanently bonding (using a commercial adhesive) liners to either internal or external surfaces. Applications include the bonding of automatic transmission parts and brake-band linings or other aircraft automotive components where two elements must be permanently joined together.

In operation, parts are manually loaded and unloaded at one station of the machine, all other operations being automatic. When the liner and band assembly are placed in one of the special locating fixtures, a peripheral stationary cam under the guard rail actuates an air valve that controls a double-acting cylinder. This brings the fixture into the clamping position at a pressure of 200 psi at the bonding line. After partial rotation, pressure in the fixture is eased sufficiently to allow any entrapped gases between the liner and the metallic cone to escape. The fixture then clamps again and remains clamped until the six-minute bonding cycle (a full machine circuit) is completed. For more information, write Dept. MPM, Modern Industrial Engineering Co., 14230 Birwood Ave., Detroit 38, Mich., or Special Projects Editor, METAL PRODUCTS MANUFACTURING.



This close-up view shows new Air-Loc machinery mounting pads in place under the feet of machine.

New, compact machine mounting pad

A COMPACT machine pad is being used in industry to help reduce machinery noise and vibration. Called "Air-Loc", it is made from polyvinyl resin. The pad is intended for use with such equipment as punch presses, industrial electric motor mounts, pumps,

machine tools, and for similar applications.

Actual composition of the pad is Geon resin, sisal, and granulated cork fused into an integrated pad. Compounding and processing can be altered to meet the requirements of a special situation. The resin binds the materials and makes the pad resistant to water, oil, grease, most acids, and alkalis. The pad is tough, yet remains flexible. The manufacturer states that even after repeated loadings to 1000 pounds per square inch, the pad recovers 99 per cent of its original thickness.

Air-Loc pads are manufactured by Clark-Cutler-McDermott Co., Franklin, Mass. This firm states that Air-Loc will reduce noise and absorb vibrations and shock loads for better machine performance and machine life.

For further information contact Dept. MPM, B. F. Goodrich Chemical Co., 3135 Euclid Avenue, Cleveland 15, Ohio, or Special Projects Editor, METAL PRODUCTS MANUFACTURING.

Left: This 20-station model of the new line of automatic multi-station rotary bonding machines completes 200 bonded parts per hour, each station bonding one part in six minutes. Machine is manually loaded and unloaded; all other operations are automatic.



Send your Interesting Industry Developments to the Special Projects Editor for inclusion in this section.



Industrial Literature

BULLETIN ON SELECTOR SWITCHES

Complete information is available on a rotary selector switch that is applicable to home laundry equipment, dishwashers, air conditioning and vending machines, to name a few, and that is rugged enough for the severe conditions of industrial applications. Contact Dept. MPM, bulletin on Model 776, Controls Corporation of America, 9559 Soreng Ave., Schiller Park, Ill.

PERFORATED MATERIALS OFFER LIMITLESS APPLICATIONS

Two separate pieces of literature are available on perforated materials that may be used in a wide variety of applications. Almost any material, including metals, plastics, wood composition, paper, and cloth from thicknesses of foil to 1 inch, can be perforated. Either or both the General Catalogue No. 62 or the Folder of Decorative Patterns can be obtained from Dept. MPM, The Harrington and King Perforating Co., Inc., 5640 Fillmore St. Chicago 44, Ill.

FOLDER DESCRIBES ALKALINE RUST REMOVER

A new illustrated four-page folder describing a chemical compound that reportedly removes rust, paint and primer from metal surfaces in two simple steps without the use of acids, has been released. This folder is free on request. Contact Dept. MPM, Turco Products, Inc., 6135 S. Central Ave., Los Angeles 1, Calif.

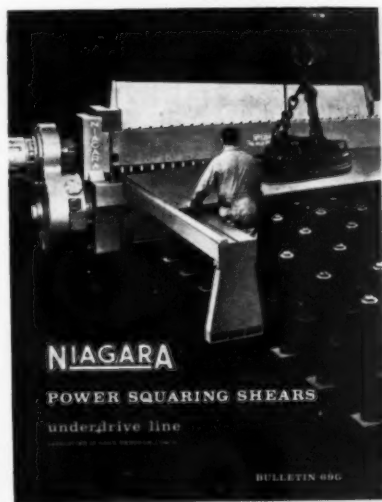
ELECTROSTATIC SPRAY PAINTING BROCHURE

Several manufacturers have reported great savings since they have changed to electrostatic spray painting. In one case, one of the results of the change to electrostatic spray painting enabled a manufacturer to step up the conveyor speed from 7 fpm to 11½ fpm. A brochure is available that cites many on-the-job examples of electrostatic spray painting on a wide variety of products. For the brochure, write Dept. MPM, Ransburg Electrocoating Corp., Barth and Sanders, Indianapolis 7, Ind.

HANDBOOK OF INDUSTRIAL HEATING FACTS

A new handbook designed to provide plant management and engineers with basic concepts of industrial heat processing and heat control is now being distributed. Engineer readers, regardless of the type of heat processing they use, will find this "Fact Book" a "refresher" course in process heating. The major consideration in modern oven construction, oven heat control, design objectives, etc. will acquaint them with recent process heating developments. The common formulas used in calculating heat and oven requirements are also included; from these, engineers are able to find their way around in heat processing problems. Write for "Fact Book", Dept. MPM, Michigan Oven Co., 415 Brainard, Detroit 1, Michigan.

BULLETIN AVAILABLE ON POWER SQUARING SHEARS



A 74-page bulletin illustrating and describing the underdrive line of power squaring shears is available. The brochure, covering shears in capacities of 16 gage through 1 inch, lists important features embodied in the line and, on pages 54 and 55, gives complete specifications. Page 73 lists other equipment. For Bulletin 69G, write Dept. MPM, Niagara Machine & Tool Works, 637-697 Northland Ave., Buffalo 11, N.Y.

INDUSTRIAL PORCELAIN ENAMEL

A 20-page booklet describes industrial porcelain enamel as a protective finish for industrial equipment and components. Special formulas of porcelain enamel are described for applications requiring resistance to corrosion, abrasion, heat, thermal shock, and other extreme conditions. Elements of design and fabrication when planning for porcelain enameling are also discussed. Dept. MPM, The Erie Enameling Co., Erie, Pa.

PORCELAIN ENAMEL BOOKLET

A new 8-page booklet describing the advantages and use of porcelain enamel household products has recently been published. The booklet, entitled "Porcelain Enamel For Better Living", contains interesting facts about how the finish is made; its advantages and various applications to appliances and household products; and why porcelain enamel is desired by today's homemakers. The two-color booklet also describes the many possible uses for porcelain enamel in the home of the future as well as other present day uses in building products, signs, and industrial applications. The booklet is priced at \$6.00 per hundred and may be ordered through Dept. MPM, Porcelain Enamel Institute, 1145 19th St., N. W., Washington 6, D. C.

BOOK DESCRIBES CLAMPS FOR PRESSES

There has been made available a new eight-page book describing the new Clamp-N-Jack Set-Up System for use with boring mills, planers, milling machines, punch presses, and drill presses. The system is a new and faster method of making set-ups on medium and short-run production. Contact Dept. MPM and ask for catalogue 557, Universal Vise and Tool Co., Parma, Mich.

FILLER METAL COMPARISON CHARTS FOR WELDING AVAILABLE

The American Welding Society recently announced the availability of a very comprehensive set of welding rod and electrode comparison charts contained in a 24-page, 8½ x 11-in. booklet. The brand names of sixty-one companies are included, twelve AWS-ASTM specifications are involved, and two indexes list brands as well as manufacturers' names. Copies, priced \$2.00 postpaid, can be obtained by writing Dept. MPM, American Welding Society, 33 W. 39th St., New York 18, N. Y.

MECHANICAL GAP PRESSES

A new 16-page catalog presents illustrations and detailed specifications of mechanical gap presses from 75 to 500 tons capacity. Design details are included as well as photographs of gap press installations. Copies are available without obligation by writing Dept. MPM, Verson Allsteel Press Co., 9300 South Kenwood Ave., Chicago 19, Ill.

WET-TYPE DUST COLLECTORS

Hard deposits, congestion and corrosion greatly decrease the efficiency of wet-type dust collectors and necessitate frequent clean-outs. This bulletin shows how proper water treatment will greatly reduce these "trouble-makers" and promote peak efficiency. Case histories show how six manufacturing plants cut clean-out time and protected their equipment at low cost. Request Bulletin WDC directly from Dept. MPM, The North American Mogul Products Co., Standard Building, Cleveland 13, Ohio.

A-C INDUSTRIAL WELDERS

A new 4-page publication includes product features, specifications, power requirements, operating data, and list of optional features for GE a-c welders in 300-, 400-, and 500-ampere ratings. Write for publication GEC-1259C, Dept. MPM, General Electric Co., News Bureau, Schenectady 5, N. Y.

"STAINLESS STEEL DATA"

A new bulletin "Stainless Steel Data" has just been issued by The Allen Mfg. Co., manufacturers of hex-socket screws and related products. The 16-page bulletin, No. G-22, is available free upon request. The bulletin gathers together for quick and easy reference a good deal of information on stainless steels. Characteristics of the three major types of stainless steels are outlined, together with their advantages in various kinds of applications. In a compact reference table, characteristics of these stainless steels at elevated temperatures are detailed as to strength and toughness, scale resistance, grain growth and structural changes, and corrosion resistance. A section is devoted to special metal finishes and treatments available. Dept. MPM, The Allen Mfg. Co., Hartford 2, Conn.

BIBLIOGRAPHY ABOUT ALUMINUM

A selected bibliography from the library of Alcoa has been made available to designers and design engineers in the metalworking industry. All avail-

able Alcoa literature and motion pictures of possible interest to designers are discussed in "Bibliography of Information about Aluminum for the Designer." The final two pages of the informative booklet include forms to simplify ordering of literature. Write Dept. MPM, Aluminum Co. of America, Room 799, Alcoa Building, Mellon Square, Pittsburgh 19, Pa.

COILED CORDS CATALOG OFFERED

A comprehensive 16 page catalog describing in detail the characteristics and uses of communication and power coiled cords is currently being offered. Included in this catalog are the general characteristics of coiled cords, including their application and inherent features, wire types and constructions available, terminations that can be used, and a description and outline drawings of standard communication and power supply coiled cords. Complete engineering data and outline dimensions are shown for the numerous rubber and thermoplastic plugs and connectors that can be molded on to these coiled cords. Dept. MPM, Cords Limited Div., Essex Wire Corp., 121 Dodge Ave., DeKalb, Illinois.

PEARLITIC MALLEABLE IRON

A new 24-page booklet provides detailed information on the strength and machineability of pearlitic malleable iron in highly stressed parts used in both mobile and stationary mechanisms. The booklet contains information on the metallurgical characteristics of pearlitic malleable iron, its specifications, mechanical properties, hardenability and application. Pearlitic malleable's machining power requirements, tool life, surface finishes and elevated temperature properties are also included. Dept. MPM, Albion Malleable Iron Co., Albion, Michigan.

EXTRUDED ALUMINUM, FABRICATION AND ASSEMBLY BOOKLET

Extruded aluminum parts of all types including escutcheon plates, border strips and framework can be made to customer's specifications. A booklet showing examples of these and anodizing and silk-screening on aluminum is available. Contact Dept. MPM, Light Metals Corp., 1215 Monroe, N.W., Grand Rapids, Mich.

PORTABLE CONVEYOR BOOKLET

A new folder is available which de-

scribes a new type of coupling for portable conveyors. The new coupling is called "Quick-Eez" and is claimed to give new economies in saving time and space for stores, warehouses and factories. Contact Dept. MPM, E. W. Buschman Co., Clifton and Spring Grove Aves., Cincinnati 32, Ohio.

DESCRIBE GASKETS AND "O" RINGS FROM TEFLON IN BULLETIN

A complete line of gaskets, back-up rings and "O" rings that are impervious to the most destructive acids, alkalis, corrosives and solvents at temperatures from -120° F to 500° F are described in a newly published brochure. Information includes service and mechanical recommendations, data on operating pressures and standard sizes and dimensional details. Contact Dept. MPA, ask for bulletin P-327, The Crane Packing Co., 6400 Oakton St., Morton Grove, Ill.

BOOKLET ON RADIANT HEATING EQUIPMENT

A comprehensive new brochure describing the various applications of radiant heating equipment in metal processing has just been published. Eighteen typical applications are described in capsule case history form. Data on product heating problems, processing temperatures, time cycles and oven design are included. Contact Dept. MPM, for bulletin 57-108, Fostoria Pressed Steel Corporation, Fostoria, Ohio.

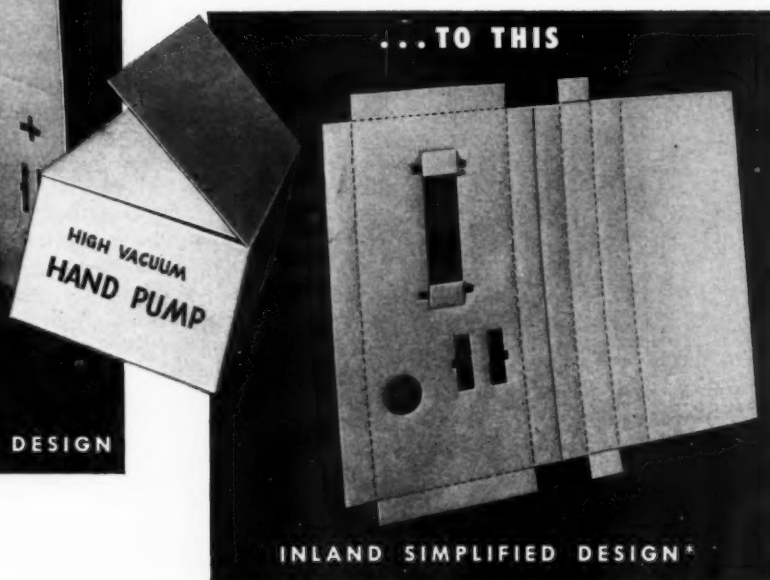
COMPREHENSIVE GUIDE TO SAFETY EQUIPMENT

Catalog 10 presents a complete line of safety equipment in an easy-to-use buyers' guide arrangement. The catalog includes all types of protective equipment, from a small half-ounce dust mask to a large barrel lifter. Nearly all of the several hundred listed items are illustrated. Write Dept. MPM, General Scientific Co., 7516 Limekiln Pike, Philadelphia 50, Pa.

SOLENOID VALVE CATALOG

A complete solenoid valve catalog, having 114 pages with 8 indexed sections, is now available. The booklet contains construction details, flow diagrams, cross section views, and prices for ordering valves from more than 67 standard bulletin classifications. Write on company letterhead to Dept. MPM, Automatic Switch Co., Florham Park, N. J.

HOW *Inland* DESIGN LEADERSHIP SAVES YOU MONEY



*Result: 30% Reduction in Packaging Labor Cost for this Inland Customer

● This two-piece inner packing, with its complicated tabs and folds, required too much costly assembly time. That's the problem Inland package engineers solved with their new, one-piece design . . . cut packaging labor cost 30% and, at the same time, provided complete protection for the products of this well-known pump manufacturer. (Name on request.)

Your Inland package engineer is a *corrugated shipping container specialist*. When your product packaging is entrusted to him, you can be sure you are getting the benefit of every possible packaging economy applicable to your product.

Inland Boxes Build Good Will

Send for this booklet fully illustrating Inland's services, facilities and products.



CALL YOUR INLAND PACKAGE ENGINEER



INLAND CONTAINER CORPORATION
INDIANAPOLIS 6, INDIANA

Corrugated Fiber Boxes

MILLS: Macon, Georgia; Rome, Georgia. **PLANTS AND SALES OFFICES:** Indianapolis, Indiana; Middletown, Ohio; Milwaukee, Wisconsin; Evansville, Indiana; Detroit, Michigan; Macon, Georgia; Erie, Pennsylvania; Ashtabula, Ohio; Orlando, Florida; Rome, Georgia; Biglerville, Pennsylvania.

Other Sales Offices in Principal Cities • Consult Your Telephone Directory

Safe Transit test equipment

two test machines and one instrument for Project 1—two testing devices for Project 1-A

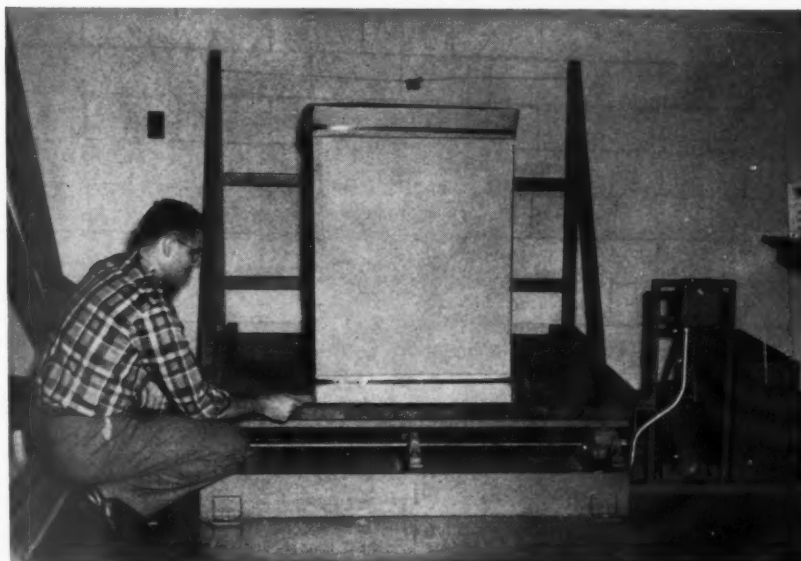
PROJECT 1

(for packaged products over 100 lbs.)

Right: Equipment for determining the ability of the packaged product to withstand vibration shocks encountered during transportation. Conditions simulated include: resonance, flat car wheels, rail joints, rough road bed or roadways, car sidesway, etc.

Below: Equipment which simulates the longitudinal shocks and impacts as received in actual shipment during various kinds of transportation. (Simulates handling shocks) Black arrow on crate indicates the proper position of the recording instrument on mounting board for accurate measurement of shocks.

Vibration testing machine



Conbur incline impact testing device



Equipment Costs

Only three equipment items required for Project 1: Conbur impact testing device, vibration testing machine, and instrument for checking the Conbur. Total cost reported by manufacturers is from \$2000 to \$2500. The divided table drop tester for project 1-A costs from \$100 to \$150.

The Sub-Committee of the Technical Planning Division will consult with all manufacturers seeking certification to make sure that the operation of all equipment is clearly understood.

PROJECT 1-A

(for packaged products under 100 lbs.)

Divided table drop tester



This drop tester is used to simulate the shock incident to the handling in transportation of products under 100 lbs.

here's why Waste King[®] uses International shipping containers

- Economical—provides Safe Transit.
- Carton designed for fast, easy assembly. Cuts packing time 20%.
- Easy for retailer to grip and handle because of flange cap design.
- Tube and cap design also enables lift truck to stack without pallets—speedily and easily.
- Dishwasher arrives factory fresh because of dust-proof packaging.
- Large clean surfaces allow product identification and advertising.



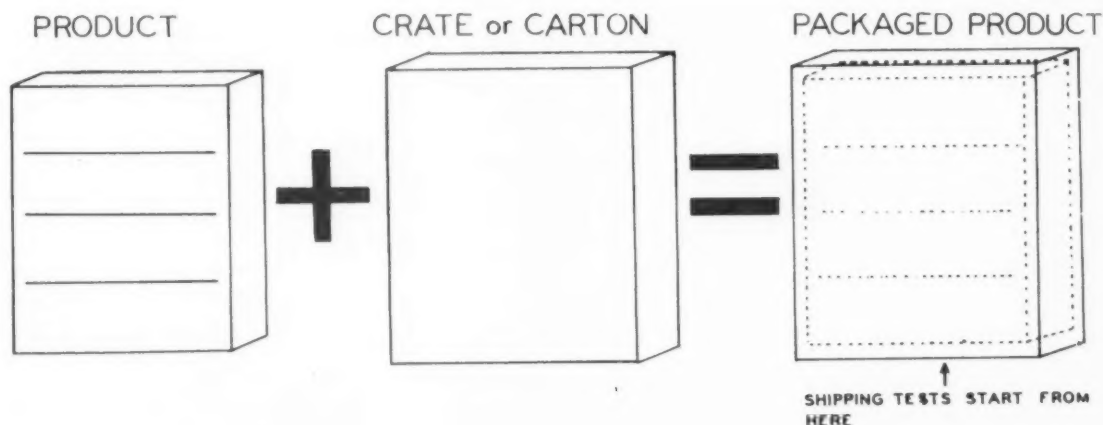
Cap and tube design facilitate easy handling.



Lift truck inserts the lifting flange under one side of cap, pulls up. Strong construction enables sure, fast lifting, close stacking without usual jostling.




International Paper company
 CONTAINER DIVISION
 220 East 42nd Street, New York 17, N. Y.



Testing procedure for Project 1

THE National Safe Transit Program is based upon pre-shipment testing of packaged products. The tests were developed by the Committee to simulate actual transit conditions. Project 1 covers pre-shipment tests for packaged units weighting 100 lbs. and over. Project 1A is for packaged units weighing less than 100 lbs.

Through utilization of these test procedures, which are given in the following pages, the manufacturer can determine the "shipability" of his entire packaged product. In case of failure, the final decision as to whether additional structural strength should be built into the article, or packaging methods altered, is left wholly within the manufacturer's province. The manufacturer must determine for himself the cause of any failure — whether it is in his container, his product, or both.

The test procedures are in every sense performance tests. Properly used, the tests provide positive benefits in the form of reduced damage, cost reductions, and improved customer good will.

A. INTRODUCTION

1. Scope

This procedure for Project 1 of the National Safe Transit Program, as developed by the Technical Division of the National Safe Transit Committee, covers testing of packaged products weighing 100 pounds or over as prepared for transportation, and supersedes all previous procedures.

The following tests are minimum re-

quirements.

Test cycle shall consist of:

- a. Vibration Test
- b. Impact Test

Tests shall be conducted in the above order.

2. Frequency of Complete Test Cycles

The number of packaged products to be tested is left to the judgment of the manufacturer; however, the sample should be sufficiently large to assure valid results.

B. TESTS

1. Vibration Test

a. Test Equipment

Vibration package tester or other equipment producing equivalent results. (See NST list of approved equipment.)

b. Test Procedure

The packaged product shall be placed on the table of the vibration tester; fences may be attached to the test table suitable for the product being tested. Vibration frequency shall be such that the packaged product leaves the table momentarily at some interval during the vibration cycle. The test shall be conducted for a minimum of one hour.

Note: A simple method of determining the proper vibration frequency is to advance the cycle of vibration until a thin piece of cardboard of approximately 1/16-inch thickness can be inserted between one bottom edge of the packaged product and the platform of the machine.

2. Impact (Longitudinal Shock) Test

a. Test Equipment

The Conbur Incline testing device or other equipment producing equivalent results.

A shock recorder. (See NST list of approved equipment.)

b. Test Procedure

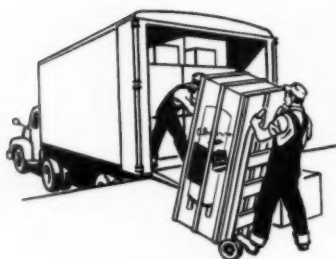
The container to be tested shall be placed on the dolly with the face or edge which is to receive the impact projecting two inches beyond the forward end of the dolly.

The shock recorder shall be positioned on the packaged product to record the maximum shock received during the impact test. This instrument should be mounted on a special mounting board. The mounting board should be as long as the side of the container on which it is mounted. The recorder should be placed so that a center line through the length of the recorder is at right angles to the plane of the backstop. (On solid wooden boxes no mounting board is necessary. In instances where it is difficult to attach the board and recorder directly to the packaged product, metal strapping or wire banding may be used).

When conducting the test, the dolly and container shall be drawn up the incline to the pre-determined position (the position shall be such as to produce impact into at least the 1st quarter of the 5th zone of the shock recorder), and released. Once the proper position has been determined, the shock recorder is removed. This test shall be repeated so that both sides, front, back and bottom

to Page 112 →

This Clayton & Lambert water heater is properly protected for safe shipment through the use of a Watkins Container.



The Finest Products Go In Watkins Containers

They are preferred because of:

1. Low Cost
2. Stacking Strength
3. 75% Assembled—Upon Receipt
4. Ease of Assembly
5. Easy Handling
6. Minimum Storage Space
7. Protection from Dust and Dirt

THESE COMPANIES BUILD WATKINS CONTAINERS



Custom Protection . . .

THE WATKINS CONTAINER MANUFACTURERS

COZIER CONTAINER CORP.
446 East 131st Street, Cleveland, Ohio

CRATE-RITE MFG. CO.
1015 Orient Street, Oakland 7, California

DURA-CRATES, INC.
940 E. Michigan St., Indianapolis, Ind.

HEMB & MARTIN MFG. CO.
P.O. Box 108, Murfreesboro, Tennessee

ILLINOIS BOX & CRATE CO.
811 Center Street, Plainfield, Illinois

KIECKHEFER BOX & LUMBER CO.
1711 W. Canal St., Milwaukee 3, Wis.

LEWISBURG CONTAINER CO.
243 Maple Street, Lewisburg, Ohio

LOVE MFG. CO.
P.O. Box 546, Wichita, Kansas

STREET CRATE CORPORATION
2019 Imperial St., Los Angeles 29, Calif.

Testing procedure for Project 1-A

A. INTRODUCTION

1. Scope

This procedure for Project 1-A of the National Safe Transit Program, as developed by the Technical Division of the National Safe Transit Committee, covers testing of packaged products, both single and multiple packed, weighing under 100 pounds as prepared for transportation.

The following tests are minimum requirements.

Test cycle shall consist of:

- a. Vibration Test
- b. Drop Test

Tests shall be conducted in the order indicated.

2. Frequency of Complete Test Cycles

The number of packaged products to be tested is left to the judgment of the manufacturer; however, the sample should be sufficiently large to assure valid results.

B. TESTS

1. Vibration Test

a. Test Equipment

Vibration package tester or other equipment producing equivalent results. (See NST list of approved equipment.)

b. Test procedure and Performance Limits

The packaged product shall be placed on the table of the vibration tester; fences may be attached to the test table suitable for the product being tested. Vibration frequency shall be such that the packaged product leaves the table momentarily at some interval during the vibration cycle. The test shall be run for a minimum of one hour.

Note: A simple method of determining the proper vibration frequency is to advance the cycle of vibration until a thin piece of cardboard of approximately 1/16-inch thickness can be inserted between one bottom edge of the packaged product and the platform of the machine.

2. Drop Test

a. Test Equipment

The apparatus shall consist of one of the following, or other test equipment producing equivalent results.

- (1) Divided table-top drop tester. (See NST list of approved equipment.)

- (2) Hoist with suitable sling tripping device.

Note: Surface on which package is to be dropped must be a flat, firm base (such as steel, concrete, etc.)

b. Test Procedure

The procedure for identifying faces, edges and corners of containers shall be as follows:

- (1) Facing one end of the container, with the manufacturer's joint, if any, on the observer's right:

Designate the top of the container as one.

The right side as two.

The bottom as three.

The left side as four.

The near end as five.

The far end as six.

- (2) Identifying edges by numbers of two faces that form the edge.

Example:

1-2 identifies the edge formed by the top and right side.

- (3) Identifying the corners by the numbers of the three faces that meet to form that corner.

Example:

1-2-5 identifies the corner formed by the top, right side, and the near end.

The packaged product shall be dropped from the prescribed height (see performance limits which follow) in the prescribed sequence which constitutes a drop test cycle:

- a) A corner drop on the 5-1-2 corner.
- b) An edge drop on the shortest edge radiating from that corner.
- c) An edge drop on the next shortest edge radiating from that corner.
- d) An edge drop on the longest edge radiating from that corner.
- e) A flatwise drop on one of the smallest faces.
- f) A flatwise drop on the opposite smallest face.
- g) A flatwise drop on one of the medium faces.
- h) A flatwise drop on the opposite medium face.
- i) A flatwise drop on one of the largest faces.

- j) A flatwise drop on the opposite large face.

c. Performance Limits

- (1) Weight of Packaged Product —50* pounds or over and under 100* pounds. Drop 12" as described in Project 1A—Section B, Part 2, Paragraph b of this procedure or (optional test) into at least the 1st quarter of the 5th zone on the Conbur.

Note: 5th zone shock may be determined by attaching the shock recorder to a mounting board as set forth in Project 1—Section B, Part 2, Paragraph b. The board and recorder shall be rigidly fastened directly to the dolly. If the use of the Conbur Incline testing device is elected, the sequence procedure of faces, edges and corners to be followed in the test will be as described under Section B, Part 2, Paragraph b of this procedure.

- (2) Weight of Packaged Product —Less than 50* pounds. Drop 18" as described in Section B, Part 2, Paragraph b of this procedure.

The packaged product shall be considered to have satisfactorily passed this test if the product is free from damage upon unpacking.

*Slight variations in weight are left to the judgment of the manufacturer or the laboratory conducting the tests.

PROJECT 1B

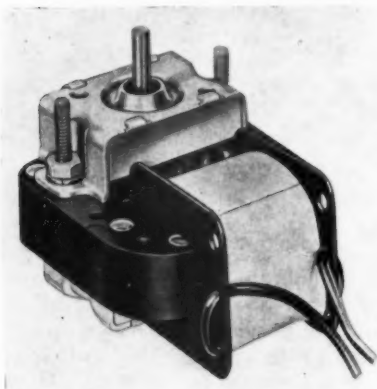
Following completion of its work on Projects 1 and 1A, the Committee directed its attention to the development of pre-shipment tests on basic carloading. Of great importance here is consideration of the crushing force that builds up in improperly loaded cars. The test procedure developed for the pre-shipment testing of basic carloading —1B— is an additional means for increased reduction of in-transit damages.

By using the procedures, the manufacturer can determine the shipability of his entire basic carload before shipment is made. As in Projects 1 and 1A, in

to Page 112 →

New Supplies and Equipment

AUTOMATIC OILING SYSTEM FOR SHADED-POLE MOTORS



Shaded-pole motors featuring a new, automatic, self-lubricating system for the bearings have been introduced. According to the manufacturer, the motors retain oil two to three times longer than the same amount of oil suspended in conventional wool felts, and use a self-wicking liquid lubricant which provides positive oil circulation. A combination of cellulose-base fibers are chemically blended to form the long lasting lubrication system. For more information, write Dept. MPM, Soreng Division, Controls Co. of America, 9555 Soreng Ave., Schiller Park, Ill.

NEW CERAMIC LAB MILL

A new "special purpose", high alumina body, laboratory mill jar has recently been put on the market by the McDanel Refractory Porcelain Co., manufacturers of industrial ceramics.

The new McDanel laboratory jar has a high alumina body, 96 per cent Al_2O_3 , and a Mohs hardness of 9. It is especially desirable in laboratory research where high batch purity, low pickup, and minimum contamination are mandatory.

Called the AVJ-1G (one-gallon size) and AVJ-1Q (one pint size), the new McDanel laboratory jar has bronze hardware and rubber or neoprene gaskets. For use on roller laboratory mills, this premium quality jar is an addition to the standard line of McDanel laboratory mill jars. For further information contact Dept. MPM, McDanel Refractory Porcelain Co., Beaver Falls, Pa.

HEATING ELEMENT

A tubular, thin-walled, aluminum-encased heating element, specifically designed for low temperature applications, has been announced. Known as the Acrawatt Temp-A-Tube, the element operates at sheath temperatures up to 550 degrees F., according to the manufacturer. Said to be safe and convenient, the unit is claimed to provide fast heating for a multitude of applications in the low-temperature range. These include container heating, either by direct contact or air, refrigeration defrosting, appliance use, and many others. For additional information, write Dept. MPM, Acra Electric Corp., 9909 Pacific Ave., Franklin Park, Ill.

PRE-PLATED METAL TO CUSTOMER SPECIFICATIONS



A new development in pre-plated metal, known as specification plate on ChromSteel, makes possible heavy chromed finishes of unvarying quality at the same production conveniences and economies as when working with ordinary sheet metal. The manufacturer now will be able to supply pre-plated sheet metal to the customer's specifications besides carrying a complete stock of standard pre-plated metals.

One of the advantages of specification plated metal is that it can be stretched without danger of drawing out the luster of the satin finish, according to the manufacturer. Even on highly polished surfaces, deeper draws than those possible on commercial coatings can often be provided. For full details contact Dept. MPA, Apollo Metal Works, 6650 S. Oak Park Ave., Chicago 38, Ill.

PROBE-TYPE THERMOSTAT

A probe-type thermostat, called the UniProbe, has been introduced. In effect an adjustable thermostat assembly at the appliance end of the conventional electrical appliance cord, the unit, having a metal shaft, or "probe", relays heat from the appliance to the thermostat for temperature control purposes. Also built into the plastic-housed unit is the female receptacle by means of which the appliance is energized. The manufacturer states that the basic thermostat used in the UniProbe has been fully field tested. Write Dept. MPM, Pace, Inc., Mansfield, Ohio.

ROTARY CUT-OFF MACHINE

As many as 2,000 pieces of pipes and tubes ranging in size from $\frac{3}{8}$ " to $1\frac{1}{4}$ " O.D. in light gauge to 16-gauge wall thickness, can be cut per hour on a new air-operated rotary cut-off machine, according to the manufacturer.

The operator feeds the pipe or tube to a pre-set stop, touches the air valve foot switch and the rotary blade descends at the desired cutting speed. Rotary cutting is said to provide faster cutting than other methods since its action is through the wall thickness rather than the entire diameter of the material.

For additional information contact Dept. MPM, Continental Machine Co., 1952 N. Maud Ave., Chicago 14, Ill.



WESTINGHOUSE another user of PERMA-VIEW WINDOWS

Westinghouse—another leading appliance name using the leading oven-door window—PERMA-VIEW. Westinghouse—one of the 57 leading range manufacturers using PERMA-VIEW.



ROUND



SQUARE



RECTANGULAR



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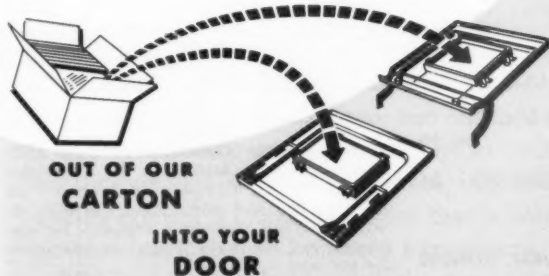
We can manufacture any shape, any size, any thickness to meet your engineering requirements. Alternate methods of attachment may be used.



Westinghouse has been a satisfied user of PERMA-VIEW windows for a number of years. Now 57 other leading manufacturers are using "the window you can see through always."

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Testing procedure for Project 1

from Page 107

are subjected to impact on packaged products having a definite skid bottom (on which the package is intended to be shipped). On packaged products not having a definite skid bottom, the test shall be repeated so that *all six* faces are subjected to impact. This shall constitute a complete standard impact test. The position of the container on the dolly and the sequence in which the faces or edges are subjected to impacts may be at the option of the manufacturer and will depend on the packaged product under test.

The packaged product shall be considered to have satisfactorily passed this test, if the product is free from damage upon unpacking.

Testing procedure for Project 1-A

from Page 109

case of failure, the final decision as to whether carloading or car blocking methods should be changed is left wholly within the manufacturer's province.

The basic information in Project 1B is an accumulation from hundreds of test cars shipped throughout the country over a period of years. This material, through the cooperation of the leading railroads, was then given an intensive proving and re-checking in the railroad yards. The tests were witnessed by railroad officials.

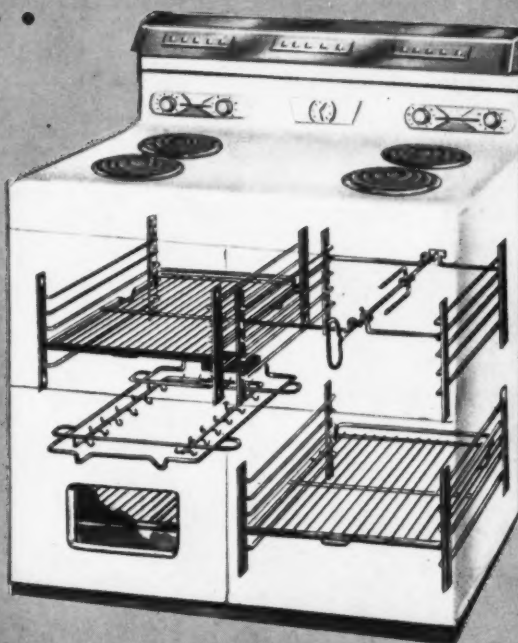
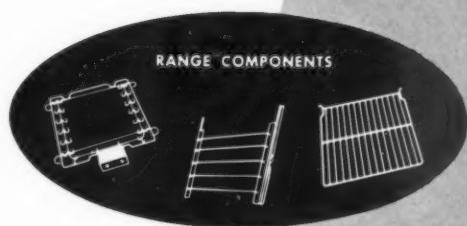
This test procedure for basic carloading is available in a separate booklet, and may be obtained by writing the National Safe Transit Committee. Combined with the regular National Safe Transit tests given in this booklet (Projects 1 and 1A), it provides a testing program which will bring in-transit losses to a new minimum. Pre-shipment testing of the individual packaged products under Projects 1 and 1A is necessary in order to realize full benefits from adoption of the Carloading Test Procedure.

REPRINTS AVAILABLE

A STUDY OF THE CHARACTERISTICS OF ANODIZED ALUMINUM ALLOYS by R. V. Vanden Berg, Aluminum Company of America. Six pages—black and white. Covers a wide variety of surface treatments available for aluminum, and the many finish characteristics. 25¢ per copy.

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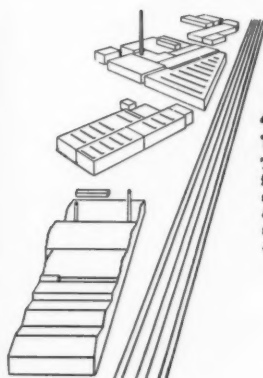
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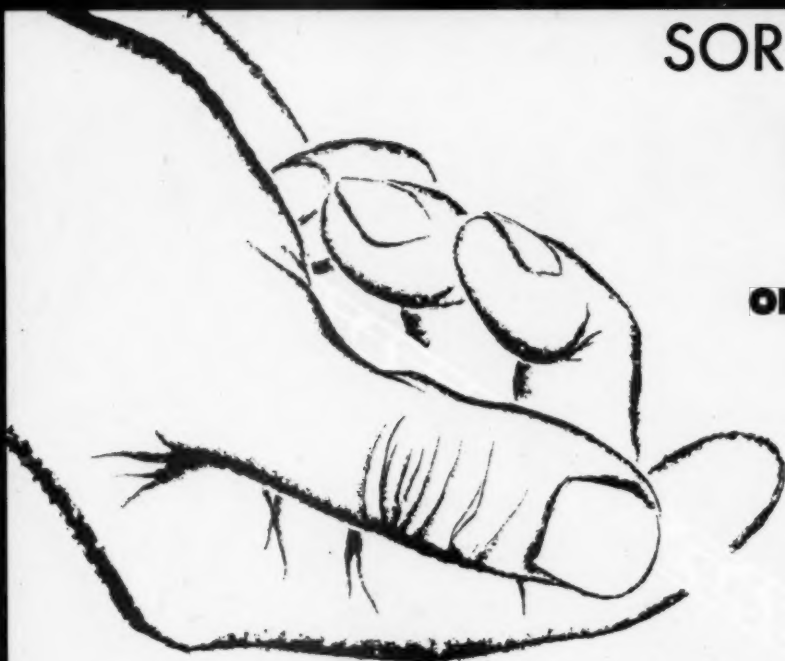
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10 amp 250 V. A.C.

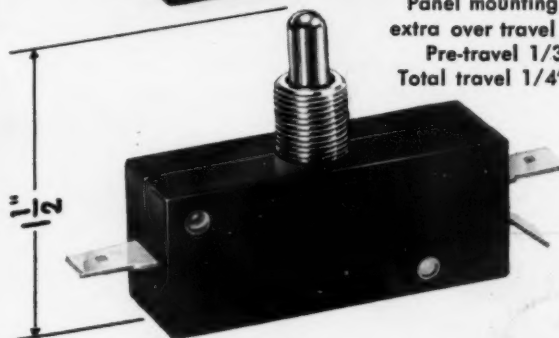
1/2 h.p. 125/250 V. A.C.

Listed by Underwriter's Laboratories

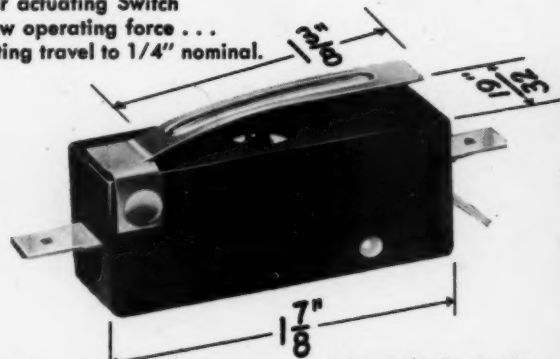
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